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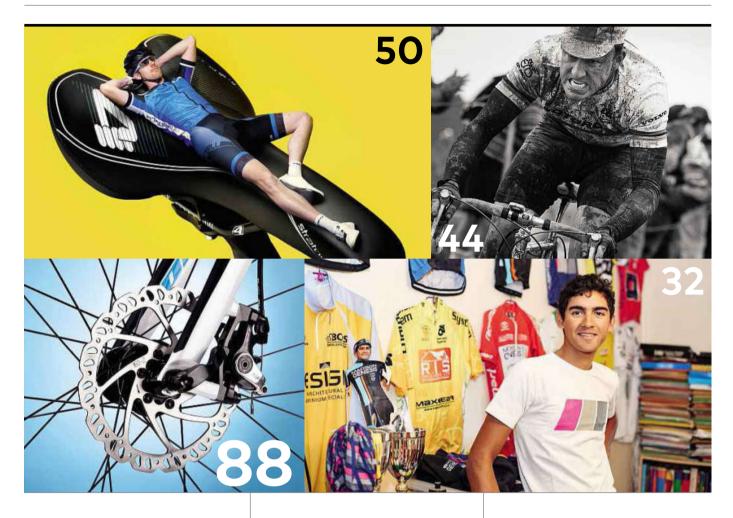
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BikesFto

SOME OF OUR FAVOURITE PRODUCTS IN THIS MONTH'S ISSUE

GARMIN EDGE 20

PAGE 12

Being an analogue sort, I don't usually get excited about new digital gadgets. I'll make an exception for the Garmin though. Diminutive in size and price, it'll store and guide you along thousands of miles of uploaded routes, keeping you on the right track even in unfamiliar territory.

Joseph Delves, Staff Writer



RALEIGH RXW PRO

PAGE 11

As the summer fades away I've been mixing it up with a combination of on- and off-road riding. A versatile bike that is equally at home on the trails as on the tarmac opens up a whole new network of places to ride. And with its neon pink and fat tyres. it takes a bit of the seriousness out of cycling too. Susannah Osborne, Writer



DHB COSMO JACKET

PAGE 64

While cycling jerseys have been through a style renaissance in recent years, outer layers are often still stuck in the past with a choice of stealth black or blinding fluoro. Not only is the Cosmo a goodvalue jacket that performs well, the attractive blue and red colour scheme makes a nice change too.

Andrew Sumner, Art Director



CRAFT STORM GLOVES

PAGE 70

A pair of these gloves kept my hands snug throughout most of last winter, so it was no surprise to see them rated so highly by our tester this month. Having worn them through some pretty grotty conditions over the last 12 months, I can vouch for their durability too.

David Kenning, Production Editor



Pete Muir.

Editorial Director

hat's the right price to pay for a bike? For £300 you could get something that looks like a road bike, has drop bars and gears, and will get you from A to B under the power of your legs. Or for £9,000 you could buy a Pinarello Dogma F8, the same as Chris Froome's, which will also get you from A to B, possibly a bit quicker.

The Pinarello is obviously better than the £300 bike, but is it 30 times better? It won't make you 30 times faster, just 30 times poorer. As the price of a bike goes up, so the performance returns diminish at an equal rate, to the point that,

at the top end, bikes are virtually indistinguishable in weight or stiffness yet can differ in price by thousands of pounds. Somewhere between £300 and £9,000 must lie the sweet spot - the point where performance and value meet in perfect harmony.

For me, that point is probably around the £1,300 mark. Pay less and you'll be compromising on something; pay more and the law of diminishing returns kicks in. By sheer coincidence, £1,300 is the price point for this month's bike test, so it could be that you'll find your perfect next bike.

That said, give me £9,000 and I'll still go and buy the Pinarello.

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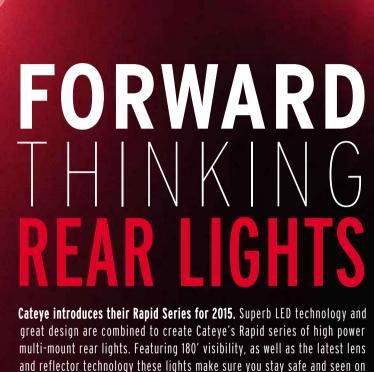
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and reflector technology these lights make sure you stay safe and seen on the road. With further additions to the range for 2015, Cateye's Rapid lights provide unparalleled visibility!

INTRODUCING THE NEW 2015

















ook makes bikes that will raise the pulse of the average cyclist and the blood pressure of most mechanics. Always innovative, it has never shied from trying new things, which is reflected in the brand's long list of firsts: first clipless pedal, first carbon pro bike, first single-piece frame. Its current flagship, the 795 Aerolight, is a spaceship of a bicycle that morphs brakes, crankset, stem, and seatpost into one seamless, aerodynamic whole. Obviously it doesn't come cheap – the frame alone costs £4,700. Safe to say, Look has traditionally been a brand for the well-funded and technologically adventurous. However, that's changing with the new 765 range.

Sharing the same frame and starting from £1,800 for a Shimano 105 build, there might finally be a Look for the rest of us. But how much of the brand's unique appeal has been lost in creating a more soberly priced bike? The Mondrian-inspired livery made famous by the La Vie Claire team in the 80s (think

Aimed at the 'endurance' market, the 765 strikes a balance between aggressive and agreeable



Bernard Hinault and Greg LeMond in the 1986 Tour de France) may be similar but up close the 765 is a far more conventional-looking beast than its pricier siblings.

It's aimed at the 'endurance' market, which means it's designed for long rides where comfort is as important as speed. Its elevated head tube puts the rider in a more upright position than on its racier models, but this is no slouch. The vast bottom bracket and down tube keep it stiff for quick acceleration and the handling remains nimble.

To temper the frame's firmness, Look has added vibration-dampening flax fibres into the fork and seatstays, which is the reason the 765 doesn't batter you too savagely when the tarmac gets rough. All in all, it strikes a balance between aggressive and agreeable, and brings a touch of the Look magic to realworld riders with real-world budgets.



Raleigh RXW Pro

A feature-heavy alloy cross bike for women

PRICE: £1,500 CONTACT: raleigh.co.uk

aleigh's first range of women's-specific cyclocross bikes aims to meet the needs of the increasing number of women who are looking to rack up the miles off road, or for a versatile alternative to a pure road bike. One of three CX bikes in the range, the RXW Pro includes a Sram 1x single drivetrain, a front bolt-thru axle and hydraulic disc brakes.

The hydroformed aluminium frame has butted tube joints, which gives it strength where the stresses are high and keeps the weight low. The C5 carbon fork helps to soften the ride. Women-specific geometry results in a slightly shorter top tube, marginally longer head tube (to give a more upright position) and a more relaxed seat tube angle to reduce

pressure through the upper body and the hands – something Raleigh's female sponsored riders requested.

Sram's Rival 1x drivetrain system has just one front chainring, doing away with the need for a front derailleur – fewer parts mean fewer places for mud to clog. Paired with the Sram 11-32 cassette there's a decent spread of gears but the jumps between them can seem quite large.

Swiss-made Cole Rollen CX disc brake wheels are kitted out with 33mm Schwalbe X-One cyclocross clincher tyres, a reliable combo that could work off road or on a commute.

At £1,500 the RXW Pro is a value all-rounder that could expand your cycling horizons. Its punky pink colour scheme looks pretty rad too.

Frame: Women specific RXW butted hydroformed aluminium alloy

Groupset: SRAM Rival 1x, SRAM S350 1x 40t chainset, SRAM 11-32 cassette

Brakes: SRAM Rival Hydraulic Disc (HRD)

Bars: RSP+ Ladies Specific

Stem: RSP+ alloy headset

Saddle: Selle Royal Sirio Ladies

Wheels: Cole Rollen CX Tubeless

Tyres: Schwalbe X1 folding, 35c

Contact: raleigh.co.uk



PRICE: £50 CONTACT: paligap.cc

Alé Water Resistant Shoe Cover

Dry feet are something to shout about

oud and proud, these fluoro zebra-print numbers from Italian brand Alé are sure to get you noticed even in the greyness of a grim British winter. Lightweight and water resistant, with welded seams and a reflective back zipper, they're well suited to night-time riding on wet roads.

Alé's obsession with all things neon might not be for

everyone but the in-your-face, 'Euro' look is a departure from the trend for grown-up, pared-down kit, which we think is rather refreshing. What's more, with nearly two decades of experience, Alé knows a thing or two about making cycling gear – parent company APG made clothes for other Italian brands such as Giordana for nearly 20 years.

MORGAW FORSAGE SADDLE

The Slovakian seat specialist aims to change the game with its shock-absorbing road saddle



experimenting and made a saddle that is more active than standard designs.'
This 'active unique platform' is created by two shock absorbers where the rails join the shell of the saddle.
Moravcik explains that conventional

the rails join the shell of the saddle. Moravcik explains that conventional saddles direct vibration through the pelvis and spine, but elastomer units in the Forsage soak up vibration.

With brands placing so much R&D focus on the reiteration of existing designs, Morgaw's fresh approach should be applauded.





SMALL WONDERS

The big thing in GPS computers is, well... small. We test two mini rivals

GARMINEDGE 20

SIZE: 2.3cm x 2.3cm RUNTIME: 8 hours COST: £109.99 CONTACT: garmin.com

Showing speed, distance and time, the Edge 20 may seem dated alongside top-end GPS devices but it has many plus points and is significantly cheaper.

You can follow downloaded routes as well as record up to 10 rides. It will also record heart rate and power data, although it can't be displayed on screen, only saved to view once you're home.

We found the Edge 20 easy to set up and simple to use, although it took a while to acquire the satellites. There are a surprising number of options on such a small computer, from enabling turn prompts to personalising settings. On the downside, the USB cradle used to charge and transfer files to a computer is a little fiddly.

LEZYNE MINI GPS

SIZE: 2.9cm x 2.4cm RUN TIME: 10 hours COST: £109.99 CONTACT: upgradebikes.co.uk

The Lezyne Mini GPS is a simple, stylish cycling computer that's easy to use. Speed, distance and time are displayed continuously and there's an option to add either elevation, average speed or temperature. The unit can store up to 100 hours of data and has 10 hours of run time. Rides are recorded as .fit files to be saved to Lezyne's GPS Root system (its version of Garmin Connect) or uploaded to a third-party system such as Strava.

The unit looks swish but the set-up took some getting used to; the system isn't as intuitive as it could be, and the menu can be frustrating to navigate. That said, it recorded accurately and there was no waiting around – simply switch on and go.

Q&A

Now that the roads are more frequently wet when I go out riding, should I be switching to tyres with more tread?

Dave Taylor at Schwalbe tyres, says:

'Many people believe that when it gets wet you should ride tyres with a knobblier tread pattern, but this isn't the case. What makes a tyre stick to the ground are the elements that makes up the tyre compound, rather than how it looks.

'Tyre compounds can include polymers, natural and manufactured rubbers and carbon. The way we use these elements determines how the tyre performs – it's about durability versus grip.

'Tread on road tyres is purely aesthetic and actually does nothing to disperse water or increase grip. Many people worry about aquaplaning when the roads are wet but this is virtually impossible on a bike. The area of the tyre in contact with the road and the high pressure mean that you'd have to be riding at 200kmh to aquaplane on a bicycle.

'There is a psychological argument for using tyres with more tread. Some riders simply feel more comfortable because they think they are more grippy, even though it's not the case.'

17

Number of pro bikes checked for internal motors by the UCI at this year's Grand Tours



£140,381

Max fine for anyone who gets caught using one

Wireless groupset

Sram reveals Red eTap

Sram's much-anticipated wireless electronic gear shifting system, Red eTap, is finally here. No wires are required to shift the front and rear derailleurs, meaning cleaner lines and less fiddling with cable routing. Press one button to shift up, the other to shift down, and both together to shift the front derailleur. It also comes with neat 'Blip' buttons that can be placed wherever you like (such as on bar tops) to shift up and down.

Being wireless, the worry is that others could 'hack' your system and change your gears remotely, but Sram assures us that each mech is encypted to work with only one set of shifters at a time. Now all we need are wireless brakes to get rid of cables altogether.









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Get small, get fast

Change your position on the bike for free speed

around 80% of the drag you experience when riding comes from wind resistance, and about 80% of that resistance comes from you, the rider. So before you splash out on a new aero bike, consider changing your position to create less drag.

Drag force is directly proportional to the area of the object hitting the wind, so if you can reduce your own frontal area by a quarter, you'll reduce drag by an equivalent amount, which could increase speed by 16%. Here are a few tips to getting small...

GET LOW ON THE BIKE

But don't overdo it. A study from the University of Birmingham found that a low riding position can constrict breathing and reduce performance such that at speeds below 30kmh the aerodynamic advantage is negated.

STOP FLAPPING

Invest in some close-fitting kit. An easy test to tell if clothing is 'fast' is to hold it up to your mouth and blow. 'It should be difficult to blow through,' says aerodynamics expert John Cobb.



TUCK IN

Having your hands as narrow as possible is a first step. Bring your elbows in so that they're in line with your hips. Tuck your head into your shoulders, and if your knees bow out like John Wayne, try to bring them closer to the top tube.

SMOOTH OUTYOUR SHOES

Wear tight shoe covers and use shoes that don't have huge buckles, suggests Cobb. The top side of the foot should be very smooth so that air flows over it.



I keep hearing that higher cadence around 90-100 rpm is more efficient, but it feels unnatural to me. Should I persevere with it?

Elliot Lipski, sports scientists and coach with TrainSharp Cycle Coaching, says:

'In actual fact, the most efficient cadence for your cardiopulmonary system [your heart, lungs and other organs working together] is in the region of 55-65rpm. This goes some way to suggest why people taking up cycling for the first time naturally select a lower cadence. It also explains why a higher cadence can feel uncomfortable.

'To produce power and move forward, a cyclist has to rotate the cranks (cadence) and put force through the pedals (torque). To produce 200 watts, for example, you can do so at a high cadence of 100rpm, which will require less torque. At a lower cadence of, say, 60rpm you would have to increase the torque



to produce the same power.

'You will fatigue quicker pushing a hard gear with high torque than by spinning a small gear and this is why a high cadence of 90-100rpm is often quoted as optimal. In short, your muscles will probably give up before your heart and lungs do.

'One way to improve your cadence is to develop leg strength while also trying to increase your cadence. This builds up the ability to power large gears at high cadence, which will ultimately mean that you'll go faster.'



HOY'S WARM FRONT

Winter kit from the Chris Hoy/Vulpine partnership

rack legend Sir Chris Hoy launched rack legend on Chine his clothing range with British manufacturer Vulpine last February, with the idea of creating functional yet stylish kit for everyday cyclists. The collection has now been updated with a selection of winter items, some of which, rather oddly, have been named after places in Mallorca (perhaps the thought of sunnier climes makes it easier to go riding in a British winter). The Portixol jacket (£99, pictured left) is rugged and waterproof yet still light enough to stuff in a rear pocket. The Roubaix jersey (£79.99, right) is soft and warm, and matches the equally cosy Roubaix bibtights (£109). When it's both cold and wet, it's time for the Randa softshell jacket (£115), which includes neat touches like a waterresistant zipped pocket and vents beneath the armpits. All of the Hoy Vulpine clothing is available in men's or women's cuts at the same price.

Three's a trend

Spotted in the propeloton, lace-ups are becoming the in-thing for road shoes



780



Number of items of clothing the average pro rider receives to see them through each season

Look into the light

Glow fabrics will enhance safety (and look cool)

ight-Flex is a new technology that allows battery-operated lights to be printed on fabrics, and Swedish company POC is already exploring the possibilities of using it on cycling jerseys and other garments. It's flexible. waterproof, washable and doesn't generate any heat. At less than 0.3mm thick, Light-Flex can be printed into complicated shapes such as logos, meaning that it will be an opportunity to make cyclewear more safety-conscious as well as simply adding standout appeal for funkier kit.

At present the technology is still in the development stage, but it gives a hint as to where winter clothing will be heading in the coming years. Find out more about it at cyclist.co.uk.



Words: Susannah Osborne





I had a crash recently. I've heard horror stories about carbon forks or frames getting cracks and failing. How can I check if my bike is safe to ride?

Neil Ball of carbon repair company Carbon Bike Technics says:

'Carbon doesn't tend to break from the inside out, so if it's broken there will likely be signs on the outside, such as flaking paintwork.

'The easiest way to tell between a crack in the paintwork and a crack in the carbon is to get something metallic like a knife and tap around the area. Damaged carbon makes a dull thud sound when tapped; good carbon tings brightly.

'One of the most common places for a frame to break is the top tube - in a fall, the handlebars can spin around and crush the top tube. The other thing we see is damage to the rear stays. This can happen when a rear hanger fails, causing the rear mech to come around the back wheel and hit the frame.'

Smooth running

A well-lubricated chain works smoother and protects components. Here's how to do it properly



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Forge fiesta

To test three performance steel road bikes we head to the home of steel – Sheffield – and the punishing routes of its surrounding hills

WORDS MARC ABBOTT PHOTOGRAPHY RICHARD BAYBUTT

ONTEST



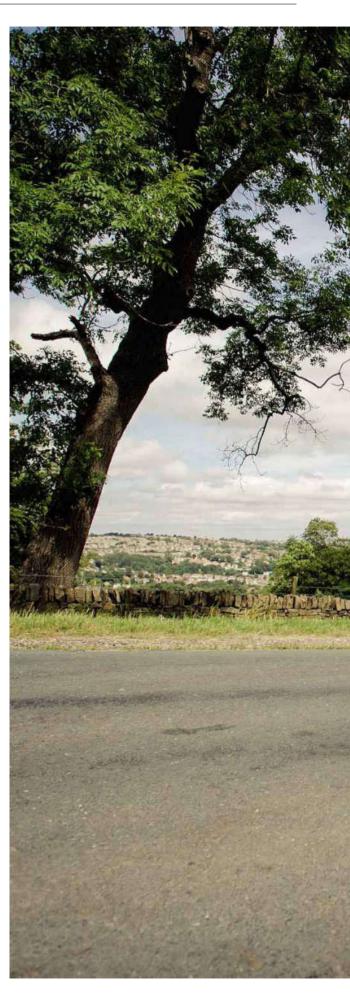
STARLEY JKS SS £2,300



CONDOR SUPER ACCIAIO £2,249



GENESIS VOLARE £2,542





FIRST RIDE Steel road bikes



s far as overused cycling maxims go, 'steel is real' is right up there with 'shut up, legs'. But it does prove the point that a great many riders still hanker after a bike that's seen the attention of a TIG welder, rather than come straight out of a carbon fibre cookie cutter.

With so many of us attracted to the idea of a handmade bike that's seen a degree of customisation, is made from traditional materials yet still packs a punch, handles like a race bike and doesn't weigh the same as a Forth Road Bridge girder, an obvious gap in the

market is being exploited by a number of companies.

The steel-framed Genesis Volare, Condor Super Acciaio and Starley JKS SS are all designed with geometry to get the heart racing, can be specified according to the customer's requirements (and budget), and, as we see it, are all in possession of a certain soul.

To find out how they compare, we took them for a thorough working over in the Peak District, just a stone's throw away from Sheffield - the spiritual home of the British steel industry.





Customised at source

All three bikes can be tailored to your needs and budget. For comparison, we chose complete bikes that cost in the region of £2,250-£2,600 but you can easily spend much more, or slightly less.

Firstly, Condor's Super Acciaio is available as a frameset-only option (£1,400) or you can create your bike from a range of groupsets and finishing kit at condorcycles.com. You'll also get a bike fit thrown in.

Cheshire firm Starley, as well as tailoring the bike with wheel and groupset options, can also customise the frame with sandblasted logos, lettering and your choice of paint scheme. Like Condor, its steel SS frame is also available on a frame-and-fork-only basis, for £1.499. A free bike fit comes as standard.

The Genesis Volare becomes a frameset-only option (£900) for 2016, so the world is your oyster with spec. It has the same geometry as the 2013/14 bike of the Madison Genesis pro-racing team.





PAIN IS IN THE EYE

of the beholder



This is Jeremy Powers. He is grimacing because he is in pain. His legs are on fire because he needs to be the first into the turn. He doesn't care how fast he's going. Not because he's crazy. But because he knows his SRAM HydroR disc brakes can help him to control his speed, no matter what. So Jeremy rides as fast as he can. Always.

STARLEY JKS SS

British-born steelie tempers agility with daylong comfort



tarley might be known for its carbon fibre frames but alongside its customisable aerospace-spec bikes, it offers the stainless steel JKS SS. The firm's in-house paint shop also lets owners customise frames.

The most noticeable difference between the SS and our other two bikes is the long, tapered head tube. It's 30mm longer than the Genesis Volare (both were tested in a size 56), giving a more traditional look and assisting in riding comfort.

With a full Shimano 105 groupset, the build gels nicely. You'd drop weight with Ultegra equipment, but for functionality, 105 is just as good. If money isn't a deciding factor, it's an extra £749 for an Ultegraequipped JKS SS.

Our ride incorporates most terrain you can imagine. On rolling tarmac, this bike gives us the easiest ride. The frame's ability to absorb vibration, allied to an excellent carbon finishing kit and fork, leaves us with no complaints. Only on the more punishing climbs, or when hammering the pedals, do we require more stiffness.







BEST POINTS

A decent frame and good-value build (despite not the highest standard of groupset on test), and excellent carbon finishing kit. The frame is stiff and light, but comfortable all day thanks to the carbon seatpost and fork.



WORST POINTS

The aero bars are oddly shaped, dropping in height from the stem, meaning limited relaxed hand positions. The fork makes the bike comfortable on rolling terrain but it flexes when sprinting or climbing.











PRICE: £2,300

FRAME: KVA stainless steel, T800H carbon fork

GROUPSET: Shimano 105 11-speed, 53/39 chainset, 12-25 cassette

BRAKES: Shimano 105

BARS: Starley Works

STEM: PRO Vibe 7

SEATPOST: Starley Works

SADDLE: Fizik Arione

WHEELS: Halo Devaura

TYRES: Continental

GP4000.25c

CONTACT:

starleybikes.com

SUMMARY

The shining light of the Starley package is the frame, but the build is marred by the fork being overly flexible. The wheels are responsive but a loose spoke early in the day marks their cards. The JKS SS could be brilliantly stiff if it had a steel fork – it might then become a grainter's delight. might then become a sprinter's delight.

Rating FRAME

COMPONENTS WHEELS THE RIDE



CONDOR

SUPER ACCIAIO

Italian-made frame loses nothing in translation



mploying the race geometry of Condor's carbon fibre Leggero, the Super Acciaio (Italian for steel) melds agility with a stiff, yet compliant Columbus/Condor steel frameset. The Sram Rival-equipped bike is an ideal partner for 85% of the ride.

A tapered head tube matched to triple-butted tubing gives a sensation of unrivalled stiffness (for a steel bike) at the front end, and when the pace hots up, the Super Acciaio is willing. It's alert and responsive, yet comfortable for a day-long ride.

Sram's Rival groupset, which occupies the same place in the firm's groupset hierarchy as Shimano's 105, is a sure choice once you're used to the Doubletap mechanism.

The letdown is its budget
Mavic Aksium wheelset, which,
although durable, doesn't spin
up with the urgency required
of a race bike. That said, for
the money, the package on
test is a decent compromise
between performance, comfort
and affordability. Equip with
a lighter wheelset and you've
a race bike that will be hard to
beat for sprinting aggression.









BEST POINTS

A stiff front end gives assured handling and rigidity, while the Columbus carbon fork takes just enough buzz out of the ride to handle all but the worst of our road surfaces. We're fans of Fizik's Aliante saddle, too.



WORST POINTS

Lower-spec Mavic wheels on this build are lacking in vim, while Sram's Doubletap gearshift system is a love-itor-loathe-it arrangement. The weight might be an issue for some riders.









PRICE: £2,249 FRAME: Condor/ Columbus triple-butted steel, Columbus Grammy carbon fork

GROUPSET: Sram Rival 11-speed, 52/36 chainset, 11-28 cassette

BRAKES: Sram Rival **BARS:** Deda RHM

STEM: Deda Zero 1

SEATPOST: Condor carbon

SADDLE: Fizik Aliante

WHEELS: Mavic Aksium **TYRES:** Continental

Gatorskin, 25c

CONTACT:

condorcycles.com

SUMMARY

Egging you on to change up a gear and get out of the saddle, the Super Acciaio is an exercise in how to combine a super-stiff frame with components that flatter and tone down its race geometry. The carbon finishing kit and carbon fork work well but it's let down by its budget wheels.

Rating FRAME COMPONENTS WHEELS THE RIDE

VOLARE

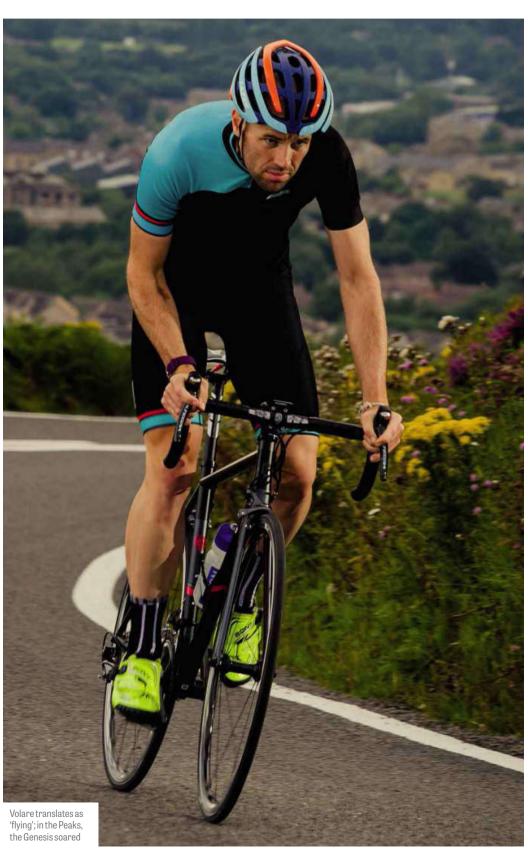
Race-proven geometry gives birth to a graceful flyer



nce you get Dean Martin singing 'Volare' out of your head and crack on with the business of propelling this Reynolds-framed machine, it's clear that there's enough urgency to corner and sprint with assurance and confidence.

Using the same race-bred geometry as the Madison Genesis team's 953 Volare that was in competition in 2013/14, the handling is properly sharp. A wheelbase of 987mm, combined with a 73.3-degree head angle, makes for an exciting ride, but one which is stable on winding gradients. We'd prefer half a degree more steering angle for exceptional changes of direction, but against the other bikes, this is superior.

Our test bike was sensibly specified with a full Shimano Ultegra groupset, PRO PLT finishing kit and Shimano's RS81 wheelset. It's the most expensive bike but the build is worth the pounds. The wheels are a cut above the too-common budget items used to keep build prices down – they're light and shod with Schwalbe's grippy One tubeless rubber.









BEST POINTS

Lovely, compliant frame with sharp handling. Full Ultegra groupset excels, and a responsive, lightweight pair of wheels with grippy tyres is a definite bonus. PRO finishing kit is also top-notch.



WORST POINTS

The PRO Turnix seat isn't to our liking, but that's down to personal preference and nothing against the item itself. The head angle could be half a degree sharper to create a very fast-handling bike.











PRICE: £2,542

FRAME: Reynolds 853 heat-treated chromoly, carbon ADK fork

GROUPSET: Shimano Ultegra 11-speed, 52/36 chainset, 11-25 cassette

BRAKES: Shimano Ultegra

BARS: PRO PLT STEM: PRO PLT alloy **SEATPOST:** PRO PLT alloy **SADDLE:** PRO Turnix WHEELS: Shimano RS81CL

TYRES: Schwalbe One tubeless, 25c

CONTACT:

genesisbikes.co.uk

SUMMARY

Genesis has made a fantastic frame that will appeal to racers and sportive riders alike. The Reynolds 853 frame gives you something you could ride all day. The carbon clincher wheelset is particularly worthy of praise and a full Ultegra groupset makes for a top package. *

Rating FRAME

COMPONENTS WHEELS THE RIDE



Genesis Volare

Bikes to

It's marginally the most expensive bike on test... but worth the extra outlay



ach of these bikes makes true on the promise of steel frames to provide their rider with unparalleled stiffness and an almost otherworldly compliance.

We purposely narrowed our choices to 'performance steel' road bikes - those with geometry biased towards hard riding and even racing. Given that all three are available to buy as a frameset which you can then build into your dream steel road bike, each of them would hold its head high against similarly priced carbon and alloy tackle. However, taking them as complete bikes, built to match our price constraints, one dominates.

The Genesis Volare has easily the best combination of sharp handling, light weight and unified componentry. A full Ultegra groupset at this price is also a real bonus.

Condor's Super Acciaio shows the most aggression. It's a purposeful frameset equipped with a quality finishing kit, but in the guise we tested it, the wheels let it down. Spend extra on Ksyrium Elites and you'd have endurance wheels that spin up quicker.

The JKS SS is visually stunning, but not stiff enough to compete with the others. That said, on a road that doesn't ramp up beyond 20% too often, it would still whup most alloy road bikes. And stand out from the crowd. Essentially, all three of these bikes do. 🛷

STARLEY JKS SS £2.300



Rating

FRAME COMPONENTS WHEELS **THE RIDE**



CONDOR SUPER ACCIAIO £2.249





GENESIS VOLARE

£2.542









IMADISON

Welcome to the road. It's you versus your route. Always challenge your limits. Each pedal stroke, every breath, brings you closer to your goal. Redefine your best.

Make it personal with Madison Clothing.

PERSONAL GAINS





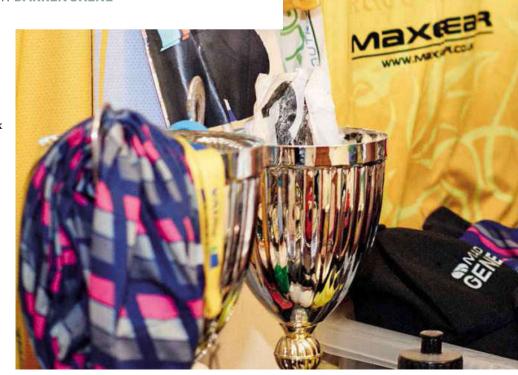
At 21, Alex Peters is the latest signing for Britain's worldbeating pro squad Team Sky. He tells *BikesEtc* of the challenges ahead and his dreams of Grand Tour victory

WORDS MARK BAILEY PHOTOGRAPHY DARREN SKENE

oung footballers dream of signing for Manchester United, teenage singers pray for the patronage of Simon Cowell, computer wizards fantasise about a job offer from Mark Zuckerberg, and the world's finest young cyclists aspire to a contract with the global cycling powerhouse that is Team Sky. For Alex Peters, a gifted and determined 21-year-old from London, that coveted offer from Team Sky arrived this summer, opening the door to a world of opportunity and adventure.

After two years honing his talent at the British team Madison-Genesis and a year at the Holland-based SEG Racing Academy, Peters – at the age when many of his friends are just graduating from university – is preparing to sample the speed and drama of the UCI WorldTour with the sport's most famous team. He is already wearing the black Team Sky kit and riding a Pinarello Dogma F8 on training rides, although he wonders what the London cycling community makes of his immaculate on-brand appearance.

'It is so funny when I'm riding out in my Team Sky kit now,' says Peters with a





giggle. Lean and lithe, the cyclist is sipping a cappuccino in a café close to the north London home where he lives with his family. 'Normally, I put my hand up and I get a thumbs-up, whereas now I get this weird reaction, like, "Who is this guy in all that Team Sky kit?" I'm still a bit self-conscious, waving and smiling, knowing I'm wearing my full Team Sky helmet, kit, bike and gloves. They must think, "Who is he? What is he doing?"'

THESKY IS THE LIMIT

Peters signed as a 'stagiaire' (cycling's version of an internship) with Team Sky in August but will commence a full two-year professional contract with the Manchester-based outfit at the start of 2016. He is awed by the team's size, reputation and attention to detail. 'The first time I pulled on the kit, I just couldn't wipe the smile off my face,' he says. 'I was at the Rapha HQ in the King's Cross area and I was getting some custom kit made. I learned all about the high-tech skinsuits, the heat regulation in the clothing and the specific technology in the weave. The kit looks black but the material behaves like white so it reflects the heat. I just thought, "Wow, this is cool, this is the big time."

The Londoner was thrilled to make his Team Sky debut in his home city at the Prudential RideLondon-Surrey Classic in August. 'I got to go on the Team Sky bus for the first time and it was pretty cool heading to the start on that thing,' he says. 'They were explaining all the little technical details to me, like the frosted glass by the meeting room which you can turn on and off.' He also raced for Team Sky at the Tour of Denmark a few days later but crashed out on stage three. His first ruined Team Sky jersey has been proudly hung up outside his bedroom, along with a colourful collection of former team and winner's jerseys.

Having just represented Great Britain at U23 level at the 2015 UCI Road World Championships in Richmond, USA, Peters is now looking forward to some winter training camps in Mallorca with Chris Froome and Geraint Thomas. He admits he will feel a bit shy training – and racing – with such famous names. 'I am not comfortable asking lots of questions,' he reveals, 'but I think it will be a very professional atmosphere and I won't feel their position is so daunting that I can't say anything.'

On signing for Team Sky, Peters said in a team press release that it was 'the best platform for me to listen, learn and develop'. He is too smart to make grand claims about future ambitions, although coaches and riders whisper that he has the talent to go all the way to the top as a general-classification rider. Reserved but confident, humble but ambitious, Peters knows he has been given

'For the first year, I want no problems. Then, I'd like to show I'm capable'

a golden opportunity – one which his talent richly deserves, but which represents only the start of his career journey.

'It is a special time, but it's like a process. Now that I'm here, it's not like, "Wow, I'm content, I've made it." It's about, "Let's see how far I go in cycling." The next few years are about learning and developing. It's all an unknown to me. Everything will be bigger, the racing will be more intense, and everything is faster. I just want to make sure I am healthy and I can perform at a very high level for the whole season. I don't want to get ill and seem like I'm a bit flaky. For that first year, I just want no problems. In the second year, I would like to push on and show I'm more capable.'







oto areaphy. Tour of Britai



Ask Sir Bradley Wiggins or Mark Cavendish about their childhood memories and they will talk about watching bike races and reading piles of cycling magazines. The story of Alex Peters is quite different. As a child, he had little interest in cycling. He hated rugby and football, too, but he loved running. 'I was pretty active,' he recalls. 'When I was five or six, I was always running around and getting injured at school and the ambulance and fire service would be called every now and again. Teachers would say, "He is overactive, he can't stop fidgeting and moving around." So my mum enrolled me in running to use my energy in a positive way - and I loved it. I wanted to be a marathon runner.'

Over time, the subject of stamina began to fascinate him. 'I was intrigued by endurance sports like Ironman races, triathlons and marathons; the idea of pushing your body for that long, that hard.' But an injury to both his knees at the age of 11 curtailed his running ambitions. 'The consultant said, "You can't run any more, you are damaging your bone."

So I started cycling and I never looked back.'

Peters enjoyed mountain-bike rides along the canal with his father, often venturing out to the Docklands or Hertfordshire, and trained regularly on his cyclocross bike. He didn't buy a road bike until he was 15. After joining the Lee Valley Cycling Club, he started racing on the Eastway circuit at weekends. 'I'd sometimes ride with my dad along the canal and then ride with the other kids at Lee Valley after a 50-mile bike ride. I used to want to ride more and more.'

GETTING THE BUG

He later competed in cyclocross races, mountain-bike events and the national under-16 road series, and represented Cycling Club Hackney. By then, he was besotted with road cycling. 'It's like an addiction,' he says. 'It was pretty simple for me to jump on my bike and ride for miles but it was hard for me to sit in school for six hours. I don't care if you are going hard and it is bad weather, I would still rather be riding my bike.'

Even when Peters was at school - a relatively short time ago - cycling wasn't as appreciated in the UK as it is now. 'Cycling is so separate from the rest of the world. Once you're inside there, nobody thinks twice about your shaved legs. But then you go back to school and it's all about the normal sports. You don't have schooldays when you're all out cycling and people didn't sit at school and talk about the Tour de France. It was still a minority sport.'

For a young athlete, Peters is strikingly composed and articulate. Only when asked about family pride at his progress do his cheeks flush with embarrassment. 'Erm, yes, I don't know what to say,' he says bashfully, but he admits the support of his parents and his older sister was a huge help during his formative years in cycling. 'Dad is very pessimistic and realistic and Mum is really optimistic, saying I can do anything I want to do, so I think I'm somewhere in between.'

Peters studied psychology, biology and economics for his A-levels and it's hard not

ALEX PETERS' TRAINING TIPS

Porridge and planning are the basis of his regime

QUALITY AND RECOVERY

'I tend to do three-day blocks of training and then a day of easier riding. That balance works really well. When you're training, aim for high-quality sessions but make sure you get the rest and recovery in between too.'

TORQUE SESSIONS

'The best way to train for climbs is to climb, but it can be hard in UK terrain. You can try doing force training or torque efforts – like riding along at 50rpm [in a bigger gear] which helps prepare you for the different physical challenges of climbing.'

PROTEIN AND CARBS

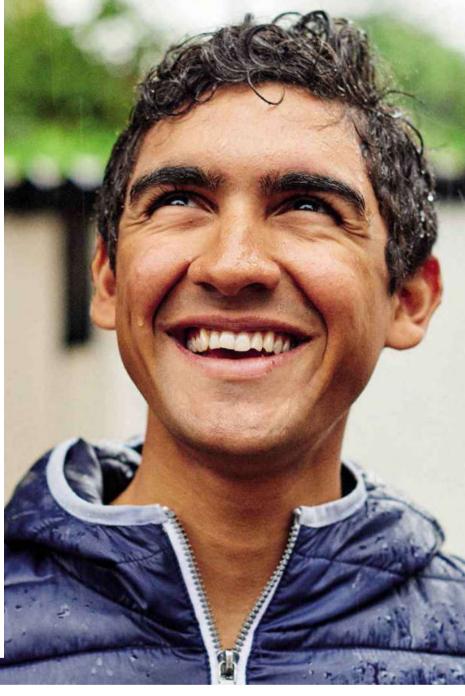
'Typically before a big race or training day, I will eat some porridge for energy and some eggs for protein. Sometimes I will have an actual meal, like rice with meat.'

TURBO SESSIONS

'If you are on the turbo, you can go crazy with lots of intervals. It's good to set up your cycling computer so you have lots of beeps or targets to keep you motivated.'

GET FOCUSED

'Always have a plan for the day. Maybe one day is a threshold session for endurance, another day is six-minute intervals to creep into VO₂ max work, and another day is anaerobic sprints to fine-tune acceleration.'



to believe he chose those subjects with one eye on a future career in professional cycling. During the first part of our interview, at his family home, he was most animated when discussing sports science. Tim Kerrison, Team Sky's head of athlete performance and the mastermind behind the team's innovative training protocols, may find Peters his most willing athlete yet.

'I'm fascinated by human potential,' Peters says. 'I want to understand it inside out. For me, it is like torture because I want to know why I am going out on the bike for six hours, at this pace, with these intervals, and I want to know about the insulin spike and glycogen resynthesis after training. I want to know about the oxygen travelling to the muscles and the mitochondria in your cells. I can't blindly follow something. I need to understand it.'

Listening to Peters talk about training science – he also speaks at length about how he has experimented with a range of different nutritional plans to maximise his glycogen storage and fat-burning potential – you get a glimpse of the inner drive and thirst for knowledge which makes him such a serious prospect. His physical talents may have earned him an opportunity at Team Sky, but his inquisitive mind could be the quality that elevates him above his peers in the future.

GOING SOLO

In contrast to most young British riders,
Peters says he was never interested in joining
the British Cycling Olympic Development
Programme in Manchester – the traditional
pathway to the top for young British talents
– because it would have involved serving an
apprenticeship as a track rider. 'I was totally
for endurance on the road so I have not been
in British Cycling's sights. I won a few races
but I don't know their process for picking
national selections for World or Nations' Cup
races [international junior competitions].
I always wanted to do them but it used to be
only people in their squads so I always felt like

I was never a part of the Great Britain team. But they changed their selection method so I did race in a few Nations' Cups.'

At 18, Peters began to forge an alternative path to the top, spending two years racing with Madison-Genesis, with whom he earned second place and the young rider's classification at the 2014 An Post Rás (Ireland's biggest pro cycling race, run over eight stages), before joining the SEG Racing Academy. A highlight of this season was finishing second overall at the 2015 Tour de Normandie. He also won a stage of the Tour de Bretagne with SEG, and finished 12th overall at the Tour of Britain, racing for Team GB. He has also spent time training in Girona, Spain.

'The SEG management, staff, teammates, race programme and training... everything is so well-drilled,' says Peters. He saves special praise for coach Vasilis Anastopoulos. 'He's crazy but the best coach in the world. I want him for Team Sky! He calls me every day and he is so enthusiastic. If you are in a bad place



has been a lot of contact. They are trying to understand me and my goals. It's a very professional way of dealing with things. I've not had contact with [team principal] Dave Brailsford yet, but he is the boss, isn't he? So he makes all the decisions and he is getting all the information about me.'

Despite Peters' excitement about the years ahead, he admits not all aspects of the life of a young pro cyclist are easy. Training isn't straightforward in London and he will have to spend more time training abroad. 'I have got this one corridor where you head out to Epping Forest and then into Essex or Hertfordshire. I can't head south because it's a nightmare hour through traffic. I can't head

'It's one thing to ride a **Grand Tour** and another thing to be a contender'

west or east because of the traffic, either. But if I take that corridor it's 35 minutes of traffic lights and then you're into rolling terrain.'

Neither is it easy for a lean man to force down food for the tougher races. 'The food is a challenge,' he says. 'I've just finished the Tour de l'Avenir [annual stage race for rising young riders in France and the Tour of Britain and I'm so hungry. At the Tour of Britain, I burned 35,000 calories in a week. One morning, I ate a fry-up, a big bowl of porridge and so many cinnamon swirls it was ridiculous.'

The prospect of racing in Grand Tours is what keeps Peters focused. You sense that at this stage in his career, tough training and endless travel feel more like privileges than sacrifices. But the rider has the talent, dedication and support network to reach the highest level. 'That is my dream: Grand Tours,' he explains. 'But it is one thing to ride a Grand Tour and another thing to be a contender. The dream is to be one of the contenders.'

Cycling fans will be hearing more about Alex Peters in years to come - which, for him, means more interviews. 'The media work can be hard because I don't like talking about myself,' he says. 'The thing is, I just think, "Who cares about what I have to say?"

If this talented young British rider continues to learn, develop and improve at Team Sky, the answer could one day be many millions more than he thinks.

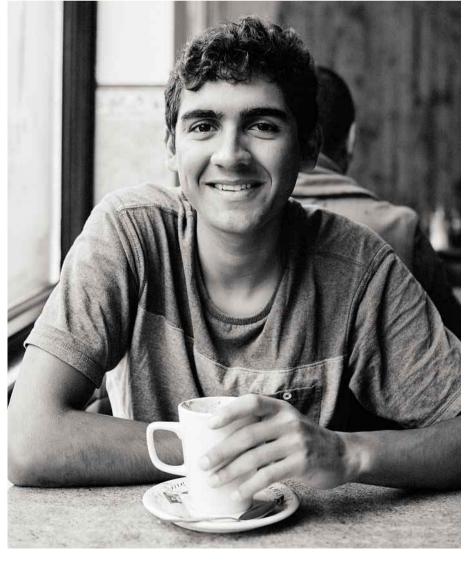
one day, he will lift you up. The mental side of bike racing is so hard. To have someone always there gives you so much reassurance. If you are happy on your bike, you train faster and harder and you race like you want to win.

TEAMING UP WITH SKY

When Team Sky announced the signing of Peters, their head of performance operations, Rod Ellingworth, revealed that the team had been monitoring the young rider for years.

'My agent had been contacting me throughout the year so it wasn't really a shock when it happened,' admits Peters. 'It wasn't a case of, "Team Sky want to sign you. Go, go, go!" It was a process where Team Sky had been talking to my agent and me for a while. But it feels nice that they have shown this faith in me. Now I've got to deliver.'

As part of the recruitment, Peters spoke to Team Sky's highly respected psychiatrist Steve Peters (no relation). 'We were on Skype for a long time when I was in Girona, so there



CAPITAL GAINS

Eight experts share tips on what kit will revamp your ride, and how to get more bang for your buck when shelling out

WORDS MICHAEL DONLEVY

ycling can be an expensive business. It doesn't have to be, but it certainly can be once you start upgrading kit and looking at ways to improve your performance. So how do you get the most for your money? And how much do you need to spend?

'As we know, £50 doesn't go far these days when it comes to cycling,' says Dan

Lloyd, former pro. But marginal gains come in many forms, and any amount can gain you performance if you spend it wisely. That's why we've asked a range of experts this simple question: how best would you spend £50, £250 and £1,000 to boost performance on the bike? Their answers open up a range of possibilities – but how much you spend, and on what you spend it on, is entirely up to you.



PAUL BUTLER

British Cycling coach and personal trainer (pbcyclecoaching. co.uk) £50

TREAT YOUR BODY

Visit a physio for an MOT. We're too reactive when it comes to niggles, injuries and muscular imbalances. If you had an expert look at you today, you may not only avoid potential injury but also identify areas of weakness that are limiting your potential. Treatment, plus a few exercises to take away, can do wonders for performance.

£250

NEW SHOES

Your shoes rotate around 90 times a minute, so upgrading to lighter shoes means you'll be lifting less weight over the top of your pedal stroke thousands of times during a ride. Also, a stiffer sole offers more power transfer to the pedals, and it's an opportunity to have an expert confirm your cleat alignment.

These Giro Empire SLXs (below left) fit the bill (£250, zyro.co.uk).

£1,000

GO AERO

The two greatest limiters to any cyclist's performance are gravity and wind resistance. We can overcome gravity by losing weight and improving power, but to become more aerodynamic, visit a wind tunnel. Your budget will get you about two hours, which is enough. Your body creates far more drag than your bike ever will so by having an expert help you find your most aerodynamic position, you could increase your speed by 20%.



Photography: Stuart Collins



DAN LLOYD

Former pro and now presenter at Global Cycling Network

MAKEOVER

Spruce up your bike by renewing bar tape and replacing the cables. You should be able to replace cables yourself, even if it involves internal routing, as there are lots of videos online to talk you through the process. It might not sound like much, but it really changes the way your bike feels and looks, and boosts your morale.

£250

CARBON WHEELS

There's nothing quite like a good pair of carbon wheels. Admittedly, some top-end wheels are more like £2,500 but if you're patient and do your research properly, you can pick up a pair of used deep sections in good condition from eBay. There's a lot of research to say that good wheels can make more difference to aerodynamics than a top-end frame. And if you use them for racing, you'll have the added placebo effect that you're expecting to go faster.

£1,000

POWER METER

They're beginning to come down in price, and you can get an accurate one for a grand. Again, secondhand is an option as crankbased power meters are normally pretty robust. I first started using a power meter when I was 25, having already been pretty much full time on the bike for 10 years, and I made huge improvements for the following four or five years. Arguably, someone timerestricted will get even more benefit than a full-time rider, as they really





WILL **NEWTON**

British Cycling qualified coach (willnewton coaching.com)

COOKBOOKS

Spend your money on good cookbooks-vou can't out-train a crappy diet. We all need good-quality protein, healthy fats and carbs, but there are different ways of getting them. Skratch Labs The Feed Zone Cookbook by Biju Thomas and Allen Lim (£23.95, skratchlabs.com) is a



£250

GO OFFROAD

As a roadie, I'd spend £250 on a weekend's mountain bike coaching. Firstly, it will get you cornering more aggressively. If you learn to corner on loose, unpredictable surfaces, cornering on a smooth road is a doddle. Mountain bikers in a crit race are infuriating, because they scythe past you in the corners and force you to chase on every straight. Secondly, mountain bikes tend to lose and regain grip - recognising that a bike can move around underneath you and accepting that is a big part of riding MTBs. On the road, this means you'll be less likely to grab a big handful of brake when your wheel slips.

£1,000

COACHING

Get a good coach. This is where you'll get the biggest improvement for your money. Be wary of paying £50-£60 for a coach over the internet, though. If you think about it, that's impossible for them to make a living, so they may end up coaching, say, 40 different people, and the chances are they only have one programme. It's also worth finding someone who can work on posture and strength. For many cyclists, these are weaknesses because they involve working off the bike. A good coach or personal trainer can help you make not marginal but big gains if you're prepared to do the things you don't like doing.



IAN HOLMES

Sports therapist and soigneur for UCI Pro Continental team Madison-Genesis (prosports massages.com)

JOIN A CLUB

Sign up with your local bike club - and buy your new mates a round with the change. It's great to get motivation from others and it will help improve your group riding. You can also use it to help set targets, such as entering a sportive or race, as you'll be more likely to stick to a training plan.



TAKE UP YOGA

Classes cost around £20 and if you go once a fortnight for six months, you'll see results. More people are warming to it as it trickles down from the proscene, and the benefits are clear, helping to increase flexibility and improve posture. Plus, cyclists tend to lack core strength and avoid core training. Anything encouraging them to work on that is a good thing.

£1,000

WATTBIKE

A turbo trainer or even a secondhand Wattbike (wattbike. com), if you can find one for £1,000. would be an excellent purchase. It allows you to train even when the weather is terrible and these days, you can hook them up to computers to measure your performance, and even download virtual cycling routes.



Ilustration: Kevin February



JULIAN CUNNINGTON

Senior sales associate and bike fitter at Condor (condorcycles. com)

NEW RUBBER

Tyres have a big impact on how your bike feels, and off-the-peg bikes usually come with cheaper, heavier tyres. The Continental Grand Prix 4000 S II (£39.99, conti-tyres. co.uk) has sidewall protection without adding weight, and are made of grippy rubber with low rolling resistance -ideal for maintaining high speed and offering reliable grip when the weather's grim.

£250

POSH SHORTS

Don't overlook the key parts powering the bike; your leas and glutes. The Assos S7T. Cento bibshorts (£220, assos.com) will keep you comfy, with single seams to reduce leg irritation and high-grade fabric that offers superb compression and abrasion resistance. Assos Chamois Cream (£13.99) is essential, too.

£1,000

UPGRADE WHEELS

Wheels are a great way to save weight and improve the quality of the ride. I'd recommend the Mavic Ksyrium Pro Exalith SL wheelset (£1.090, mavic.co.uk), They're 1.355a. with a carbon front hub, and Mavic's stealth-looking Exalith 2 rim coating provides improved braking in all conditions, as well as better durability.



STU BOWERS

Deputy editor of Cyclist magazine and former Team GB racer and mechanic

CUSTOM ORTHOTICS

The foot/pedal interface is the root of many niggles that arise from the highly repetitive nature of cycling, plus driving a large amount of force through a small contact patch. Poor foot stability in your shoes leads to hotspots and localised discomfort. but are more likely reduce pedalling efficiency and power and can lead to injury. Only the foolish man builds his house on unstable footings.

£250

AERO HANDLEBARS

Studies have shown that handlebars are one of the most important components in reducing wind drag, as they're one of the first areas the airflow 'sees' on the bike. Best in category examples include Enve. Bontrager and Zipp (SL-70 Aero, £260, zipp.com - pictured), all of which have invested heavily in wind tunnel-ratified bar shapes. While they won't make you an overnight world champion, they could shave off a few precious watts of overall drag, especially if you consider going a size narrower too, to help reduce your frontal area even more. Extra speed for free (or, in this case, for around £250) is not to be sniffed at.

£1,000

BIKE MAINTENANCE COURSE

Knowing how to take care of your bike will not only save you a heap of cash (eventually paying for itself many times over, in just a few years), but will also ensure you start every ride with your bike in A1 condition. Knowing your bike is running as slick as can be is a big help mentally, plus nobody wants to be stuck at the side of the road with oilcovered hands. Cytech courses cater for all levels and can take you from complete novice to spanner-wielding champion in a matter of days. Your bike need never miss a beat again, and you'll have more spare cash to spend on shiny bits.

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ALEDA FITZPATRICK

Rapha Cycle Club concierge in London and event coordinator (rapha.cc)

SHOE FITTING

For £45, you can get a cleat fit. If you're in London, I'd recommend Ben Hallam at Bespoke (bespokecycling.com) - to make sure your cleats are right for you and be assessed to see whether you need inner soles to support your arches. It also allows you to dip your toe into what a bike fit might do, and whether you might need one.

£250

CLIMBING TRIP

If you've never ridden a classic Alpine col. book the cheapest tickets you can to the south of France and get climbing. You can stay either with friends (if you're lucky) or at an AirBnB and still come in under budget. Climbing a col-even oneputs everything else into perspective and will only improve your riding.

£1,000

ELECTRONIC GEARS

Raise your game with the Ultegra Di2 groupset. You can get all the bits you need for an upgrade for under a grand (full set £1,245, madison.co.uk). This is perhaps more of a luxury, but slicker shifting will ease the stress on the joints that shifting can create and inspire you to train harder.



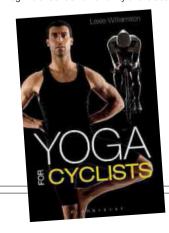


RONAN DESCY

Co-founder of bike fit specialist Fit and Find (fitandfind.com)

EXERCISE GUIDES

Because we spend so much time hunched over desks and crunched into cars, most of us are structurally weak and inflexible. Working on these two areas will enhance your cycling ability, and yoga and pilates books aimed at cyclists like Yoga For Cyclists by Lexie Williamson (£9.82) can help. Set out a weekly regime of core and flexibility exercises.



BIKE FITTING

A good bike fit should be a priority. Even small changes to your position can radically improve performance. Beware, though - not all bike fits are equal. Select someone with reputation for detail and ability to fine tune position for performance. £1,000

TRAINING CAMP

The regimented structure of a training camp fosters disciplined training. Riding unfamiliar terrain with people you don't know challenges the mind and body, pulling it out of its comfort zone. This environment gives clarity of where you are in relation to your season target. 🛷



Photography: Geoff Waugh, George Marshall



Making Hthe



WORDS WESLEY DOYLE

he story of Lance Armstrong's recovery from cancer and subsequent domination of professional cycling, including his seven Tour de France victories, was ripe for the screen even before his admission of cheating in 2013. It was a story that seemed too good to be true yet one that everybody desperately wanted to believe in.

Based on journalist David Walsh's book Seven Deadly Sins: My Pursuit of Lance Armstrong, director Stephen Frears has made a film that packs in 18 years of cycling history its two-hour running time, including pivotal moments such as Armstrong's hospital confession in front of Betsy Andreu, the intimidation of Filipo Simeoni and the rejection of Floyd Landis that led to his whistleblowing. As well as exploring the human aspects, the film recreates the high drama of racing in the professional peloton, and Frears was well aware that he needed













all the elements – from the actors to the bikes to the locations – to be entirely convincing to a knowledgable audience. It was a big ask, especially as cycling fans are so passionate (according to Frears, designer Paul Smith, a self-confessed cycling nut, stressed to him the importance of getting the bikes and the clothes right) but it's one that the makers of *The Program* have pulled off with, it has to be said, some aplomb.

To achieve the level of authenticity, the project hired retired pro cyclist David Millar as a consultant. 'I educated Stephen [Frears] on the cycling world,' Millar tells *BikesEtc*, 'from the bike riding, to the history of the sport, to the characters involved. It's a big responsibility to get the detail right and everybody involved was fully aware of that, from the costumes, to the make-up, to the actors. Everybody wanted it to be authentic. We are very lucky – cyclists should appreciate that there has been a lot of effort put into making it look right.'

For Millar, this attention to detail became most apparent when scenes years apart chronologically were filmed in the same day. 'As an outsider coming in to do a movie, you think it's done in the order it happens but it just doesn't work like that,' he says. 'It's done

'Everybody wanted the film to be authentic. There has been a lot of effort put into making it look right'

around the locations and the timeframes; sometimes we would move five years in one day. The morning would be 1999, the afternoon would be 2004. The costume department was incredible with measuring up the riders for the bikes, the costume changes, the different shoes.'

It was a challenge to find all the bikes that spanned the era the film covers: 1994 to 2012. Going from dealer to dealer, it took four months to find all the bikes, with the Eddy Merckx models Armstrong rode in his early Motorola days being the hardest to source. Where originals couldn't be found, UK bike maker Condor stepped in to make copies.

ON THE ROAD

One of the things the producers wanted to avoid was making the cycling footage look like the coverage we all know and love from TV. 'That is always very much from an outsidelooking-in point of view,' says Millar. 'We tried to bring the cameras a lot closer and give a view no one has seen before and make it more personal. It's not easy but it's a way of looking at the sport that no one has seen before.'

To create the effects while capturing the action shots, the production team employed complex methods, including a cameratracking vehicle leading the peloton, buggies on the side, plus cameras on the bikes.

As well as consulting on the riding, Millar was also charged with pulling together the pro cyclists required to make the action look authentic. He lined up a group of seasoned European campaigners including Garmin-Sharp directeur sportif Andreas Klier, former Paris-Roubaix winner Servais Knaven, and One Pro Cycling's leader Yanto Barker.

The majority of the action was shot on location including Col du Galbier, Alpe d'Huez and La Grave (which stood in for Sestriere).



BEST ANIMATION

BELLEVILLE RENDEZVOUS (2003)



A Tour de France rider gets kidnapped by Mafia types and has to be rescued by his gran with the help of a trio of ageing jazz singers. It's gloriously surreal, beautifully animated, and more French than a dockers' strike

quest appearance.

BEST DOCUMENTARY A SUNDAY IN HELL (1977)



Following the 1976
Paris-Roubaix classic,
this documentary has
Eddy Merckx (looking
like Elvis) battling Roger
de Vlaeminck (looking
like Al Pacino) over the
cobbles of northern
France. A true taste of
racing as it used to be.

Filming also took place at Charleville-Mézières and Maing in northern France for when flatter terrain was required, while the Belgium town of Bouillon was the setting for the early-season Flèche Wallone one-day race.

'The biggest hurdle was getting it all together before winter arrived,' says Millar. 'As we wanted to use pro riders, we had to shoot at the end of the season. Even I couldn't be there until October as I was racing. It became very much a race against time.'

The haste became a benefit though as it resulted in a very focused shoot that saw the riders – both pro and otherwise – pull together like a real life peloton.

'I can't believe we got through two weeks [of cycling in the Alps] with no crashes,' says Millar. 'We had no accidents, which says a lot about the skill of the guys and the respect they had for each other.'

BUILDING A TEXAN

The respect went both ways. Ben Foster, whose performance as Armstrong is central to the success of the film, says having Millar on set was crucial to making it all work. 'David Millar is a legend,' he says. 'He was the cycling conductor and he kept his eye on how to represent cycling in a way that the community

can stand behind. David was after the essence and the feeling; the essential, the ecstatic experience of what it means to ride for six hours and keep suffering; how does a peloton breathe; how does it migrate. We were blessed to have Millar's eye on it because it is sharp.'

Prior to The Program, Foster was probably best known for his turns in Lone Survivor and Alpha Dog, as well as the lengths he'd go to make them authentic. For the former, he ate handfuls of dirt to experience being under siege from the Taliban, while in the latter he used glaucoma eve drops to aid his performance as a meth addict. True to form, he took his preparation to play Armstrong to extremes, recently confessing to The Guardian that he took performanceenhancing drugs to get inside the mind of the athlete. 'I don't want to talk about the names of the drugs,' he told Ryan Gilbey from the paper. 'It isn't something I'd recommend to fellow actors. These are serious chemicals and they affect your body in real ways. There are behaviours when you've got those chemicals running through your body that serve you on the bike but which, when you're not ...'

Foster describes himself as 'falling on the side of a fan' of Armstrong but before filming began he wasn't a cyclist. This



meant not only did he have to change his weight and body composition, he was also thrown in at the deep end when it came to on-bike training. He entered a training camp in Boulder, Colorado, to achieve the required physicality and embedded with the Garmin-Sharp cycle team, who were participating in the Cross Colorado Tour. 'I had never been on a bike with clipless shoes, he says. It was daunting, particularly when you have the opportunity to spend time with a culture that demands such physical mastery over a tool.'

MELLOW JOHNNY'S

In total, Foster had about six weeks on a bike before filming began. Once he'd got used to the pedals, he then had to learn how to ride as part of a bunch, at speeds that would make the resulting footage look convincing. 'You've got to hold your line,' he says. 'We were surrounded by a very supportive community who are very concerned about how their community was going to be portrayed, so they don't want some actor showing up and faking it. This is their life so they wanted to make sure it was accurate. If I am going to think that, man, I just got on the bike for the first time six weeks ago and now I have to wear a yellow jersey in the peloton and climb Alpe d'Huez, it's not going to work. So faith is belief and I happened to be surrounded by a lot of men who've lived that dream, who've ridden that col. So I was in very good hands.'

The Program won't make your top five list of greatest ever sporting movies, but for any cyclist it is still a must-see. It wasn't just the climbs that were $daunting-riding\,on\,wet\,cobbles\,proved$ equally challenging but it also gave Foster an had developed. 'I was following a truck and feeling this storm of cyclists behind when they hit the brakes,' he says. 'I just missed the

the investigations, the litigations, the eventual downfall - and The Program tries

to pack it all in. This is perhaps where the

every aspect of the tale, it loses something

and it might have benefitted from skipping

Where it can't be faulted, however, is in

the accuracy of the details and the quality

of the performances, especially from Ben

Foster. The resemblance is uncanny, and

Foster plays Armstrong not as a monster

unwilling-to stop his lies snowballing into

but as a highly driven egotist unable - or

one of sport's biggest ever scandals.

in the drama and pacing. It feels rushed,

some scenes in order to give us more of

the glorious racing shots in the Alps.

movie falls down. In its drive to include

opportunity to show how much his bike skills truck, went onto a field and pulled off through the mud back onto the road. I think that was the one day when I actually got the peloton on my side as "Ben the actor" because Lance the cyclist would have done that.' Which, of course, he did on the 2003 Tour de France,

'Seeing Ben's commitment and his appreciation, I had 100% confidence in him there and then'







riding across a field to avoid Joseba Beloki who had crashed on a descent in front of him.

For Foster, mimicking Armstrong on a bike was an added challenge. 'Finding a posture that was representative of Lance's signature was very important,' he says. 'So getting positioned on the bike and looking at his pedal stroke and noticing that his heels are slightly out, and it is more of a duck pedal, and he has an arch in his back and he shifts his hips underneath. He is almost bird-like - he's like a vulture or a hawk or a coiled cobra. So finding a position that was representative of his signature was something that we spent a lot of time refining. That was very important, as anybody who loves cycling knows that.'

Having seen a picture of Foster and been quite convinced that he could play Lance, Millar's first meeting with him was as a member of team Garmin-Sharp on the Tour of Colorado. 'A lot of the guys who were there were ex-team mates of Lance,' he says, 'so Ben got a real idea and spoke to real people who had raced and worked with him. Seeing his commitment and his appreciation. I had 100% confidence in him there and then.'

It may come as a surprise when watching the film, thanks in no small part to Foster's nuanced portrayal, that Armstrong is neither played wholly as a monster nor a victim of his situation but rather something in between. 'The film asks a lot of questions,' concludes Foster, 'and you're going to fall on one side or the other. Either Lance Armstrong cheated and lied and the only reason he won was because he is a doper, or you can look at it and say he was one of the greatest cyclists of all time and he did what he thought he needed to do within a time where everyone else was doing similar things, he just did it better.' 🕉 The Program is in cinemas from 16 October

GORE BIKE WEAR®

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ELEIVIENTS

We believe that cyclists should be able to get out and follow their passion every day. Therefore, we create highly-functional apparel for every environment, every season and every kind of weather. We allow them to head straight out into the elements.



Are you sitting comfortably?

There are many ways bike manufacturers can make rough, rocky roads feel smoother. BikesEtc examines the science of compliance WORDS MAX GLASKIN PHOTOGRAPHY ADRIAN-CATALIN VOLCINSCHI can turn a jolty jaunt into a ride that glides. tarmac can shiver your timbers.

ough roads don't have to mean rough rides. Scientists, frame builders, component suppliers and clothing companies are working to take the ting out of road rattle. Compliant frames and forks, seatpost suspension, tolerant wheels. sympathetic tyres, padded shorts and mitts

The comfortable solutions are worth seeking because the dangers are real. Constant vibration on the handlebar can damage nerves in your hands and fingers and a shaking saddle can press persistently and painfully on your perineum. The most extreme is the Paris-Roubaix pavé, which shakes the riders for 90 minutes at intensities that are banned for factory workers if they go on for more than seven minutes a day.

'Pro cycling is definitely a sport of discomfort,' says Brent Bookwalter, BMC Racing Team rider and top time-triallist. 'You have to be willing to place yourself in an uncomfortable position physically for a very long time.' Even assuming your bike is set up perfectly for your body, any coarse

What's more, getting shaken all over saps your energy significantly. Experiments have shown that if you are vibrated as you cycle, your body needs up to 5% more oxygen.

Fortunately, scientists have been pinpointing the problems so solutions can be found. They say 24% of the handlebar vibration is down to the choice of forks and another 15% to the wheels. For the seatpost vibrations, the wheels get 42% of the blame and the frame 28%. But pause before planning to change those parts. Scientists at the University of Reims Champagne-Ardenne in France, who've been agitating about vibration and cycling for years, point out that the wrong wheels can increase the tremors by 13% and tyres by a massive 25%, which means the best solution could also be the cheapest. They got their figures by making a long-suffering FDJ team rider pedal to and fro across some sketchy surfaces.

Yet they also confirmed what many riders have learned from experience – if the going gets bumpy and you don't want that numbness in your fingers or tingling up your arms, it's best to put your hands on the brake hoods.

GIVETHE PADS A BREAK

Padded mitts are a personal choice. 'Finding the right glove is important, as your hands are main

A good frame softens the ride before road buzz reaches you

pressure points when you're riding your bike. Sometimes a thicker pad in a glove doesn't actually help the vibration,' says Harriet Owen of the Matrix Fitness Pro Cycling team. 'I use Bontrager RXL gloves as I think a gel pad provides great durability, reduces pressure and helps to eliminate hand numbness.'

Bookwalter has ridden with and without hand cushioning. 'In Paris-Roubaix, I double-wrapped my bar tape and wore padded gloves, but usually I wear unpadded gloves because I like the way it connects me to the bike and the handlebar. I prefer to pay a little bit of a price in comfort and vibration.'

Likewise, the choice of chamois for shorts is personal. Josh Ibbett won the 2015 Transcontinental race, cycling from Flanders to Istanbul in nine days, 23 hours and 54 minutes, wearing the slimmest of pads. 'I had a thinner chamois because there's less to chafe - and they dry out quicker,' he says.

The pad isn't rated very highly for most riders, particularly when compared to the influence of the bike on comfort, and this has been borne out by new research at the University of Padova, Italy. Dr Antonio Paoli recruited nine club riders and made them wear a selection of chamois in their shorts as they pedalled. The result? The volunteers perceived little difference between the comfort given by the basic and the endurance pads, even though

BEST BIBSHORTS

Wearing the right shorts can make life much happier on the bike. We've picked three pairs that are guaranteed to pamper your posterior



Howies makes its shorts on specialist machines that knit yarn into a single $continuous \, tube \, shape, so \, the \, material \, is \,$ practically seamless and feels like a second skin. The dual-layer pad ensures a comfy ride while the subtle chevron-shaped mesh on the high back panel keeps things cool and dry. howies.co.uk



The 'infinitely variable thickness' of Castelli's Endurance X2 chamois means different amounts of padding in different areas, but you'd be hard pressed to detect the edges between them. The shoulder straps are soft and comfortable, and the leg grippers stay secure without being too tight.

saddleback.co.uk



These go-to shorts bring the same level of care and quality of materials to Rapha's women's range as its men's clothing. The padding is excellent, maintaining its comfort after long distances, and the grippers sit nicely on the thigh, preventing the dreaded 'sausage leg'.

rapha.cc

ATEASE

Six handy tips that can improve your riding comfort tenfold

- To get the maximum power into the pedals for optimum energy output, make sure you know the right set-up for your bike for the length of time and terrain you're planning to ride. So that's saddle height, position and angle. Likewise for your handlebars - be sure to see a bike fitter.
- Minimise road buzz in your hands and arms by riding on the brake hoods as much as possible - they dampen the vibrations.
- Padded bar tape, thicker gloves, a thicker chamois or a new saddle could give you a smoother ride.

- Try dropping tyre pressure by 10-20psi to see if it feels more comfortable. Any small increase in rolling resistance may be offset by a boost in the efficiency of your body because the softer tyres absorb more of the bumps.
- Comfort seatposts, which evolved from mountain biking, can soak up vibrations before they reach you (see page 55).
- Mind over matter. 'When you're in a race, I think you just have to take your mind off the discomfort,' says Harriet Owen, Matrix

instruments showed the endurance pad reduced maximum pressures. Still, they were on a stationery bike in a lab and pedalling for only 20 minutes, which is not typical of most cycling experiences.

KEEP YOUR FRAME IN MIND

In the real world, framebuilders hope that whatever's in your shorts is not a big issue because they want their frames to soften the ride sufficiently before any road buzz affects your body. In recent years they've been working hard to keep frames laterally stiff, so pedalling efforts are translated efficiently into forward motion, while somehow boosting their vertical compliance – the flex that helps absorb bumps and vibrations.

Bianchi and Specialized have both included viscoelastic materials in their carbon to dampen vibration. Trek's Domane and new Madone feature



an IsoSpeed decoupler that acts like a bearing at the junction of the seat tube and top tube to allow the seatpost to flex almost independently of the rest of the bike. Cannondale says its sinuous SAVE-shaped rear triangle does the job. Pinarello added a Jaguardesigned lightweight shock absorber to the seatstays of its Dogma K8-S, along with flexing chainstays.

Deciding which are most comfortable in general is not easy. A new study by the Reims scientists shows the effect varies according to the frequency of the juddering, So, a Lapierre Pulsium, with its twin section top tube and elastomer, came top when dampening vibrations faster than 40 times a second (40Hz), but others were better at lower frequencies.

That's useful information if you know the speed you'll be riding and the bumpiness of the cobbles ahead but, unless you've ridden those sections often, those are unknowns for most of us. Mind you, vibrations at 40Hz are best avoided if possible because other experiments suggest they give a real battering to your ankles, particularly when your foot is at the lowest part of the pedal stroke.

TYRE PRESSURE

The bikes in the Reims lab tests had tyres inflated to 100psi, a conventional choice for road riding, but reducing pressure from that norm is the easiest way to reduce road shock. 'When I rode the Spring

EXTREME DISCOMFORT

What are the worst road surfaces that you've ever ridden on?

'The Strada dell'Assietta, north of Sestriere, Italy. It was a gravel climb. The descent was just awful cobbled, not maintained. It was particularly extreme.'

JOSH IBBETT, brand manager at Hunt Wheels and winner of the 2015 Transcontinental Race from Belgium to Istanbul

'When I rode the Tour of Flanders this season, the vibration of cobbles was something you really had to get used to.'

HARRIET OWEN, Matrix Fitness

'The most extreme vibration on-road was my one chance to compete in the Paris-Roubaix. Those cobbles are unlike any elsewhere in Europe-they're really harsh. I wouldn't really consider it a road surface. They're more like some of the MTB races.'

BRENT BOOKWALTER, BMC Racing



Some cyclists simply feel more shock impact than others

bike, 25mm, and ran at a lower tyre pressure to help improve comfort,' says Harriet Owen of Matrix Fitness.

The BMC squad uses 25mm tyres almost as a matter of course these days, according to Bookwalter, although he asks the mechanics to run his at a little lower pressure than his team mates. 'Comfort, vibration and control is a big piece of that,' he says. 'Even if the rolling resistance is a little bit slower, I feel like the lower pressure is a lot more supple and keeps your tyres rolling on the ground rather than bouncing all over the place.'

The severity of surfaces Josh Ibbett expected on the Transcontinental led him to go even wider -28mm. 'They're underrated in road racing but they eliminate pinch punctures so you can run them at lower pressures. I had them at 90psi to start but when I went off a good surface, I dropped it to 50-60psi to get a wider footprint,' says Ibbett. 'Potholes really jolt and less air takes away the harshness. I was riding with the minimum amount of gear so it was all measured with the "magic thumb" tyre pressure gauge,' ie pressing the tyre with the thumb to feel how much air was in it.

Now it's acknowledged that wider tyres put more rubber on the road to boost control and grip, yet the comfort benefits of changing tyre pressure apparently differs between riders, according to some clever lab tests by engineers at Sherbrooke University, Canada. They recruited seven experienced cyclists and put them on the same bike in turn - a large Argon 18 Helium fitted with Mavic Ksyrium 18-spoke wheels and Michelin Pro Race tyres, just 23mm wide. It was a fairly stiff setup and highly likely to transmit a lot of road shock - which is what the cycling lab rats were going to have to endure

The researchers asked the innocent volunteers to ride the bike on a treadmill, to which they had cunningly glued a wooden dowel almost 1cm high. The back of the bike was lifted slightly so only the front wheel was on the treadmill.

As the rolling road moved, the rider was bumped roughly every second, as they kept their hands on the brake hoods. Then, without telling them, the tyre pressure was changed and they were asked if they noticed any difference in the jolt at their hands on the brake hoods. Surprisingly, three out of the seven riders said they couldn't feel anything different even when the pressure was dropped from 100psi to 70psi.

It's the first time that anyone has tested how sensitive riders are to tyre pressure changes through their hands. 'This suggests that some cyclists have a better capacity than others to differentiate the impact of sensory inputs at the hands,' say the Canadian researchers. In other words, you might pump your tyres rockhard and not feel a thing, but your mate will be shaking all over if he does the same. It seems that your comfort can come down to the kind of rider you are and the roads you ride on, as much as the bike you ride. The trick is to ignore the hype and experiment with changes in tyre pressure, saddles, shorts, seatposts and the rest, and see what works best for you. If that sounds like a pain in the neck, it could at least save you a pain in the backside. 🚜

COMFORT SEATPOSTS

The right seatpost can massively improve your bike's ability to absorb vibrations before they hit you in the saddle. Here are three of our favourites

SPECIALIZED CG-R £150

It may look odd but the CG-R's kinked profile is worth learning to love because it's what gives the saddle its vertical compliance. The bumpbusting magic happens at the top of the seatpost, so it's an excellent option for people on smaller or non-compact frames.

specialized.com

SYNTACE P6 HIFLEX

Syntace's 'load-oriented material distribution' means its P6 seatpost has an elliptical bore that places more material where it's needed and less in areas of lower stress. The titanium hardware has a 10-year guarantee, an excellent saddle clamp and an extra-wide lower section to support the saddle rails. o-w-d.nl

CANYON VCLS 2.0 £143

This unusual-looking seatpost is made of two separate half-round leaf springs that allow your saddle to flex backwards as much as 25mm. And unlike some options, it doesn't need to have a lot of length exposed to accomplish this.

canyon.com







CRASH CAUSE: OTHER RIDERS

Anyone who saw how Geraint Thomas was T-boned out of the Gap stage of the 2015 Tour de France will know that no matter how straight you play it, there's no accounting for the actions of others.

A chief risk-raising factor for competitive riders is the dynamics of the peloton: the chaotic crowd, races within a race, the focus on survival. All make it a critical crash scenario, 'On occasions, it's definitely down to rider error,' says Ian Bibby, NFTO rider and 2015 winner of the British National Circuit Race Championships. 'It's either when they're trying to get away on a descent or get back on a descent. Lack of concentration can cause silly crashes - but most common in this situation is people touching bars and crashing in front of you, triggering a pile-up.

Amateur and pro races all have riders who can handle their bikes at different ends of the spectrum. Jon Sharples, head of performance at TrainSharp (trainsharpcyclecoaching.co.uk), teaches pros and amateurs how to avoid getting too intimate with the tarmac, though he concedes some riders are more prone to crashing than others. 'We all know a rider we would be happy to ride behind all day long and trust their knowledge and judgement going into corners and pointing out obstacles etc,' he says.

But even among the elite there are those you'd be wise to give a wide berth. 'Often it's down to poor handling skills - which can be worked upon,' Sharples continues. 'The Colombians, for example, received a poor reception when they first joined the pro ranks as their handling was nowhere near the standard of European pros at that time. Every crash that happened was blamed on one of the Colombian riders, even if they happened to be at the opposite end of the peloton when the crash occurred.'

CURE: EVASION TACTICS

So, what can you do? 'Have a look around at the riders in your race and try to spot the novices,' advises Sharples. He suggests it's usually the rider who may be nervous at cornering that's most likely to take you out. 'Then there are the riders who take too many risks and look like a crash waiting to happen. You can't always avoid these riders but it's best to try.'

Ian Bibby echoes those sentiments. 'You need to stay alert to the behaviour of other riders.' Some actions can be anticipated. 'Riders taking a drink will slow up,' he warns. Others - slipped gears, punctures or mechanicals that can stop a rider who's in your path - aren't so easy to spot. 'To combat this, try to relax as much as possible when close to other riders,' Bibby advises. 'Tension in the muscles will slow your responses and distract your focus - any movements you make when you're taut are exaggerated and potentially hazardous.

If you take a knock, try to brake smoothly and stay in a straight line. Set your weight back a bit to keep the bike upright and straight.





Matt Rabin, team chiropractor with Cannondale-Garmin and co-author of The Pain-Free Cyclist (Bloomsbury), on the emergency essentials every rider should have...

'Wound coverings – get your pharmacist to recommend a selection.

'A nonsteroidal anti-inflammatory pain-relief gel works wonders.'

'The paracetamol for pain relief, ibuprofen for inflammation – check you don't have any reactions to this kind of medication first.

'In case you need to call for help or just get a cab to take you home.'

'Useful at times when ice isn't available to reduce discomfort - avoid applying to broken skin as it causes irritation.

miss opportunities to strike out - Mark Cavendish, for one, isn't afraid of a crash. But too cocky and you'll come down with a bump, warns Sharples. 'Riding too fast for your own abilities is a common factor among new club riders. It's wrong to think pros take more risks than amateurs. In general they do not. They have just developed the skills to ride faster through corners, down descents and across challenging road surfaces.

TrainSharp's own Sean Yates is acknowledged as one of the best descenders to ever ride a bike. 'That ability was developed over many years of practising and developing his skills,' says Sharples, advising that while practice doesn't ensure perfection, it does reduce risk - especially at crux points like corners. 'If it's not a case of somebody touching a wheel in front and bringing down many more riders, then most crashes will occur through corners. If you are going to take a corner at full speed, it is no good just heading into it as fast as you dare - you will crash! You need to think about your braking point, road surface, riders around you, how you will turn the bike at this speed and lots more.'

CURE: CREATE SAFE SPACE

As riders around you drop their speed, so the risk of overlapping rises. Combat this by leaving enough space in front, so that if the rider slows into a 🔁



corner, or stands up on a climb - pushing his bike back as he does - it's not going to catch your front.

This will become second nature as you develop and hone your skills,' says Sharples. 'It still doesn't mean you are taking risks, it just means your ability to corner at speed has improved.'

If that corner turn becomes too tight to take at full speed, aim to feather the rear brake while maintaining your line. 'Swerving could take out the rider behind you and compound the problems,' adds Sharples. Positioning and posture are key to avoiding a trauma at the turn. Bibby is among a number of riders who insist that you keep your head up to avoid a crash. 'Aim to get a view as far as possible through the course of the turn,' he suggests. Take the opportunity to go off-road whenever you can too, as mountain-biking handling can improve strength and stability on the road.

COLLISION CRITERIA:

WEATHER AND WORKINGS

'Damp road conditions and rain can be a recipe for disaster as the grip between the tyre and road surface, and brake pad and rim, are drastically reduced,' says Sharples. 'But correct equipment choice can make a big difference.'

Tips to avoid multi-rider pile-ups

Corners are critical avoid sharp turns, opting for smoother ones that won't trigger skids.

Taut muscles and a tense grip delay reactionsensure you've a little ʻgive' in your arms and upper body to ride out a knock or skid.

Pushing down hard on your outside pedal when turning a bend can

help with purchase and traction to the road.

When in a group, don't get transfixed on the wheel in front - aim to look ahead to see what's happening at the front of the group so you have more time to react to changes in pace or potential obstacles.

Train in the rain whenever possible-you'll soon learn the limits of your brakes and tyre friction.



It's the Belgians! Calamity at the Ghent-Wevelgem in March 2015, which was eset by wind and rain

The most common crash-related injuries

'This is the most familiar side effect of a crash,' says pro team chiropractor Matt Rabin. 'Take a shower to clear out any debris from the road – it'll sting but it's a must. Get a tetanus booster if you've not had one in the past five years.'

'Caused by heavy impact on the shoulder or arm as a rider

COLLARBONE (CLAVICLE)

more severe outcome of that heavy fall – keep your arm still and head off to x-ray.'

'Usually left to heal naturally with medication for pain management-if you're experiencing breathing difficulties, though, get yourself to A&E.

tries to break their fall.'

'If you're unlucky, this is a

A lap to go at the 2015

Prudential RideLondon

Grand Prix and a huge pile-up decimated the field

The TrainSharp coach cites a number of common problems that occur as meteorological factors meet mechanical ones. 'Full carbon rims do not brake well in wet weather; deep carbon rims will react badly to very windy conditions and can cause the bike's steering to be very erratic; and tyres that are pumped up to a firm 120psi will have less grip than softer tyres.'

For Ian Bibby, the 'faults' can be much more fundamental. 'Get familiar with your bike - and make sure the brakes are the same way round on every bike you ride. There's nothing worse than slamming them on in a panic and grabbing the front brake when you think it's the rear!

CURE: GREAT GEAR SELECTION

Bibby suggests wet-weather riding needn't be so risky if you stick to smoother, sweeping turns on the widest line at bends, avoid hard-braking and again ensure that your grip isn't too tight.

You can also do something about the above to make your own bike much safer to ride in adverse conditions. 'Aluminium rims will decrease your braking distance - they're a much better choice when it is wet,' says Sharples.

'Always set your tyre pressures to the conditions and manufacturer's specs,' he adds. 'You'll be surprised at how low some manufacturers advise you to run their tyres.' And if budget is not an issue, then think about having a wet-weather set of wheels. 'These can be shod with the latest wet-weather tyres to give you an edge,' says Sharples.

'Cuts and bumps are common. If you're able to recall what happened, know where you are, your name etc, you should be fine. But headache, dizziness, nausea and loss of balance following a crash could signal concussion. If so, call it a day and get home or to hospital without riding your bike.'

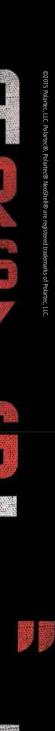


IN THE EVENT OF A CRASH

'Normally, I try to get up ASAP and check for any injuries,' says Bibby. 'Then I check that the chain is on, brakes haven't broken or locked and that the bike feels safe. Most importantly, avoid panicking when you're chasing to get back with the pack - this will just cause another crash.'

Sharples echoes the priority of putting yourself ahead of the bike. 'Generally, you will know straight away if it is just a case of road rash or something more serious - if you're dizzy or have hit your head then you must seek medical treatment.'

Along with checking the brakes and chain, give the wheels a quick spin to check straightness and check the tyres. 'If the bike hit something hard then there could be damage to the frame and fork,' warns Bibby. If you're unsure, then pull out at that point and get the frame checked by your bike shop.'







POLARTEC

Impossible Made Possible. Sportful wanted to create more advanced technologies for the rider, not just the ride.

We collaborated to invent a custom Polartec® NeoShell® fabric that delivered more breathability, weather protection, and resilient stretch than ever before. The new Fiandre Extreme NeoShell® Jacket is the future of cycling performance.



ReviewsEtc

Whether you're after a bike, components or clothing, the *BikesEtc* expert testers have put the latest gear through its paces to find what's right for you

PHOTOGRAPHY HENRY CARTER. JENNI LESKINEN



THE AWARDS



Best Value

The winner of this award may not have the highest overall score in the test, and it may not be the cheapest, but it will always represent especially good performance at its price.

Minitools

p84



Best In Test

The overall winner in each group test. Scoring highly in all criteria, it will be an excellent all-rounder. Where two or more items achieve equally high scores, it will be the one that has that extra something – a touch of style, a special feature – that takes the prize.



BikesEtc Gold Award

This prestigious award goes to bikes, accessories, components or items of apparel with exceptional levels of performance, design and build quality that make them must-haves. Don't expect to see it every issue – we only hand it out when it's truly deserved.

£1.300

88d

road bikes

RALIS JACKETS

Get equipped with technical outerwear and defy the warnings of the weather forecasters

By the first week of September, the Daily Express was already predicting an apocalypse of snow, hail and bitter arctic winds would be pummelling the UK by the end of the month. Then again, they were also predicting crime gangs turning people into zombies using psychotropic plants. Assuming

we've survived both these eventualities by the time you're reading this, it's time to start thinking about wrapping up a little warmer when you head out on your rides. These 12 jackets run the gamut from ultra-packable windproofs for sunny but crisp days to heavier-duty items more suitable for long rides in the rain.

√Pearl Izumi Elite Barrier

£65

A slim-cut jacket that skips on being absolutely waterproof in order to provide better breathability, the Elite Barrier also gains favour by being very nicely put together. The hangtags on the zippers are particularly well thought out-handy when wearing gloves or making adjustments on the fly. Its exceedingly breathable fabric feels pleasant next to skin but still provides solid windproofing, while brief showers are largely deflected by its durable water-repellent treatment. Should it get wet through, it's light enough to dry rapidly. Given that you're unlikely to sweat too heavily should you leave it on for the duration, it's a great option for changeable but not extremely heavy weather.

madison.co.uk

Rating

BREATHABII ITY WEATHERPROOFING





The material on this jacket manages to be both extremely waterproof while still being really rather stretchy. For such a cheap garment, this is a very clever trick. What the fabric definitely is not, though, is breathable. Normally this would have you sweating like a pig in a sauna, but sizeable mesh vents down the sides below the back of the collar do a good job of regulating the temperature inside. Obviously some water will eventually find its way in but at this price it's a clever compromise. Although slightly basic, the rest of the detailing, including storm flap and mesh-lined collar, are impressive for the money.

onetenapparel.com

Rating

BREATHABILITY WEATHERPROOFING



→ Madison Shield

£70

Made of slightly heavier-weight fabric than some others, the Shield nevertheless packs down into its own relatively small stuff sack-thanks largely to its lack of a mesh lining. The reflective detailing on the back, shoulders and cuffs all hint at a slightly more commuter-oriented jacket, as does the more relaxed fit - although if you're of a larger build or fancy layering up underneath, this shouldn't put you off. The large rear pocket is totally waterproof while being roomy enough to store a few essentials. Extended cuffs are very welcome on damp mornings. It's not the most breathable on test, so heavy sweaters or those who run hot might want to look elsewhere. madison.co.uk

Rating

BREATHABILITY WEATHERPROOFING







← Altura Women's Synchro Waterproof

Lightweight considering its level of waterproofing, this jacket packs down to fit into a jersey pocket or bag. There are no vents in the arms or back, making it stuffy when the pace picks up but, along with the elasticated cuffs and waist, at least helps to keep the rain out and make the jacket warm. The cut is 'performance fit', meaning it sits close to the body but there is still room for additional layers. The rear is long so provides full coverage, and it doesn't bunch up. The rear, waterproof pocket features taped seams so should protect a phone and is large enough for essentials. The water resistance along with the colour would make this great for commutes and is easily stashed at work. altura.co.uk

Rating

BREATHABILITY WEATHERPROOFING



←Giro Wind

580

By not attempting to make this jacket totally waterproof, Giro has been able to make it both extremely light and incredibly breathable. In fact, the fabric that constitutes the majority of the jacket is fairly water-resistant and the durable water-repellent (DWR) treatment means that light rain will run off rather than soaking through. The perforated backpiece effectively vents the half of you that isn't directly facing the wind. Even in this fairly loud orange colour it's smart-looking and, despite its racy pretentions, the cut isn't overly aggressive. Given its minimalist credentials, it's unsurprising that there are no pockets except for a nifty internal one that doubles as a stuff sack for the jacket for easy transportation. zyro.co.uk

Rating

BREATHABILITY WEATHERPROOFING





→ Altura Podium Waterproof

Stowing neatly in its own zipped pouch, this jacket is as good for stuffing in a back pocket in case of an unexpected shower as it is being worn from the outset. Although totally watertight thanks to taped seams and a storm flap-backed zip, you're unlikely to build up too much of a sweat thanks to the above-average breathability of the fabric. Altura has avoided the bin bag-style fit that can afflict some packable jackets by strategically integrating panels of stretchier material around the arms and shoulders. This results in a better silhouette and helps prevent it flapping in winds. It's not cheap but you'll still feel you've got your money's worth. altura.co.uk

Rating

BREATHABILITY WEATHERPROOFING











←Nalini Acquaria Lady

£65

Made from an extremely lightweight fabric, this jacket packs down small and adds little bulk when stored in a jersey pocket. Even so, it still offers an impressive amount of wind resistance. Along with the thin material, the large vent across the back allows for high levels of air circulation, helping to avoid overheating. The waterproof treatment provides light resistance - splashes of water from the road and short cloudbursts roll off, but it can't withstand stronger rainfall. There is a small pocket on the rear with just enough room for a phone and some change. The elasticated cuffs and silicone gripper on the waist keep the jacket in place while on the bike and the light weight makes it hard to notice you have it on. The polka-dot chainring pattern is eye-catching and cleverly adds an all-over reflective element. chickencycles.co.uk

Rating

BREATHABILITY WEATHERPROOFING



→ Polaris RBS Pack Me £55

In this case, RBS stands for 'really bright stuff' and constitutes British brand Polaris' range of safety-oriented cycling kit. The Pack Me is a unisex jacket with a relaxed cut, made of polyester taffeta windproof microfibre fabrics. Given the name,

it's no surprise to find lots of reflective detailing to complement the jacket's loud colouring. Marketed as windproof, it'll survive brief showers without wetting through, although prolonged exposure to rain will leave it soggy. On the flip side, breathability is far better than most comparably priced shell jackets. If you're commuting, this may be a good trade as sweat can be more of a problem

polaris-bikewear.co.uk

than the occasional spot of rain.

Rating

BREATHABILITY WEATHERPROOFING











It's easy to make a product waterproof but far trickier to make it comfortable and breathable as well. Not a drop of water is likely to find its way inside the Affusion jacket, but then again, neither is it likely to find its way out: anything other than sedate rides quickly turn into sweat-fests. Marketed as a multisport jacket, cyclists will appreciate the dropped tail and adjustable collar, although otherwise the cut is too bulky for cycling, resulting in excessive flapping when riding in the wind. Reflective trim and orange almost as bright as the sun mean that being seen is not an issue (it's also available in fluoro yellow and black). The large rear pocket also misses a trick by not doubling as a pouch for the jacket itself, like most others on test.

Rating

dare2b.com

WEATHERPROOFING





BREATHABILITY



£83

Extreme by name and nature, this jacket is designed for the very foulest of conditions. There's precious little superfluous detailing, so no pockets or vents and minimal branding. It's exactly the sort of jacket passed out from the team car once the rain starts hammering - no surprise given Vermarc's long relationship with Belgium's pro teams. Unfortunately, non-sponsored riders may find a few drawbacks. Although tough and warm, the heavy fabric isn't particularly breathable. It's also fairly bulky, making it hard to squish into a jersey pocket. The cover-all fit is also cumbersome and the drop tail flaps. A staunch performer but best saved for really brutal conditions. chickencycles.co.uk

Rating

BREATHABILITY





WEATHERPROOFING



→ dhb Cosmo

£55

A great-looking jacket for relatively little money, the Cosmo also proved to be more breathable than we would have expected given the price. We were particularly taken with the teal colour (also available in black and 'vapour' - grey, to give it its traditional name) and Scotchlite detailing. The high collar is fleece-lined for comfort and warmth, while at the other end of the jacket a good degree of stretch and a strip of silicone grippers ensure the dropped tail stays securely in place above your posterior. Its single waterproof pocket can be used to protect your valuables while riding or the entire jacket can be folded into it for easy portage. Given the cost, we were hard pushed to find any real negatives. wiggle.co.uk



BREATHABILITY WEATHERPROOFING













Pearl Izumi Women's Elite Barrier

In a sea of windproof jackets, this fluorescent pink number certainly stands out. The Barrier fabric provides cool-weather protection on morning rides and then packs down to fit into a jersey pocket once the day warms up. The large vent across the back helps to regulate temperature, while the relaxed fit allows layering of jerseys underneath. While windproof, the jacket is only resistant to road spray: longer rides in light rain soak through. Cut short in the back, the jacket rides up but the elastic draw cord keeps out drafts. There is a zippered pocket on the front and back, big enough to stash essentials. Overall, a good jacket for rides on chilly days. madison.co.uk

Rating

BREATHABILITY WEATHERPROOFING



AND BREATHE...

How do you stay dry on the inside as well as out? BikesEtc explains what makes a fabric breathable. And it's not called a zip...

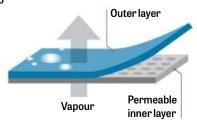


A fabric's breathability is measured by how many grams of water vapour can pass through one square metre of fabric in 24 hours. A string vest is completely breathable, whereas a roll of clingfilm is not, but then it's pretty unlikely that you'd go out cycling wrapped up like a sandwich or looking like Rab C Nesbitt. Most cycling jackets have an

outer layer, which is the first barrier against the elements, then a second permeable layer punctured with tiny holes that are too small to let rain water in but are small enough to let

water vapour out. Your sweat warm water vapour - passes through these tiny holes by a process of diffusion (the movement of molecules from a place of high concentration to a place of low concentration). In cold, dry weather, a super-breathable jacket can lead to clouds of water vapour visibly leaving your body, which may leave you looking alarmingly like a smoking bonfire.

How breathable your jacket needs to be depends on how fast you're going to ride. On a steady Sunday outing, a rating of 10,00015,000g/m2/24hr should suffice but if you intend to go full gas, a rating over 20,000g/m2/24hr might be more appropriate. The dhb Cosmo we tested, for example, has a rating of 30.000a/m2/24hr, which we found well suited to all-day riding.













AUTUM

Not ready for the turbo trainer? We road-test weather-defying gloves so you can ride for longer

Sitting out-front and directly in the wind, your hands are likely to be the first body part to detect the coming of autumn. A fantasy of crisp, clear mornings and swirling golden leaves is the standard way to sell autumn to consumers but grey skies and drizzle tend to be the reality. Either way, you're going to need

a little more insulation to keep your digits happy but while the temperature remains above freezing, you won't want to bury them under clumsy, sweaty waterproof gloves.

These windproof numbers will keep your fingers dextrous and the chill at bay. Magazine land is a strange place to inhabit, existing three months ahead of the real world. The moment summer begins, BikesEtc is already gearing up for winter. Luckily, so is Scotland, where we tried out several pairs. We put 12 of the best through the wringer to find which came out on top.



£40

Italian brand Alé is a big proponent of neon and these gloves uphold that tradition. A singlelayer fabric means sweat doesn't get trapped easily, although being thin, they'll start to get nippy as temperatures dip. Features include touchpad-swipey surfaces on the index fingers and grippy silicone sections, and we're happy to find elongated cuffs. Water-resistant but not waterproof, neither heavy nor too light and with moderate padding, there's little to offend. Nothing massively stands out either, which is ironic given





Madison Element

£20

These gloves will suit riders who subscribe to a less-is-more attitude. It's a philosophy that governs both the amount of padding available (very little), and the construction, which is extremely simple. The relatively spacious cut is both comfortable and dextrous. The extended Velcro-free cuff is speedy to pull on and off while neatly bridging the gap between glove and jacket. There's enough insulation to keep the worst of the windburn off, although the sides of the fingers can feel a little breezy. Unless you're buying these especially for the touchscreen-compatible fingertip, which proved to be ineffective, we'd happily recommend these. madison.cc





These sturdy gloves are a little tight for podgy fingers so consider going a size up. Made of fairly unyielding fabric, they'll take a few rides to mould themselves to your hands, but once broken in, the fit remains slender thanks to their multi-panel construction. Although we're not always fans of Velcro closures, we've no specific gripes here beyond them being another thing to fiddle with.

We would, however, have preferred longer cuffs to shut out any draft between the top of the glove and the end of your jacket. Whether you get on with the chunky padding is down to personal preference. wiggle.co.uk

Rating VALUE CONSTRUCTION



The attention to detail and multi-panel construction belies their relatively low cost. While the fabric used on the uppers does a good job of deflecting wind-chill, there's not much additional insulation to cover the back of your hand. This will suit warm-blooded riders better than those who suffer with the cold, although both will appreciate the enhanced breathability and dexterity. Strangely, the palms have more insulation than the uppers, along with some additional gel padding. Unless you're sold on finding a glove with an unadorned palm, we'd happily recommend these. endurasport.com





Originally a distributor of high-end Italian brands in the 70s, Caratti is forever linked with the idea of crochet-backed cycling mitts in the minds of older cyclists. These intermediate weather options are mostly made of windproof material with additional padding on the palms. By contrast, the thumb is constructed of a towelling-type material forming a snot wipe - while the back of the glove will hold off the rain, it'll seep through here. Cut on the fingers is boxy, but they're still a good choice for the price.

caratti.cc







Pearl Izumi Cyclone Gel

£35

We're wary of gloves that promise lots of features; the more they pack in, the higher the chance of some element niggling. It's the same attitude we take to padding. On both accounts, the Cyclones confounded our preconceptions. Although chunky, the gel pads fell exactly where we would have placed them, the touchscreen fingertip worked flawlessly and the multi-panel construction fitted snugly. Despite their low bulk, fingers made of wind-resistant material keep digits toasty. madison.co.uk







Altura Night Vision Windproof

£30

With their high-vis commuter-style looks, we were keen to see how these gloves performed on more athletic rides than our regular trundle to work. Constructed of windproof fabric, they're robust without being bulky, thanks to a clever ergonomic construction. The palms feature subtle padding while the underside is covered with tactile silicone grippers. Despite not being marketed as waterproof, they're untroubled by showers and with a liner glove will happily serve into winter.





These lightly insulated gloves are only a step away from a summer full-finger, so there's little material between you and the handlebar. There's none of the clumsiness that comes with warmer gloves, so these will suit anyone who needs dexterity. They won't keep your hands as warm as others on test but depending on your circulatory system, you may get through autumn without resorting to anything bulkier. Lack of barrier fabric helps them remain breathable, although they'll soak when it rains. zyro.co.uk





Proviz PixElite Windproof

Proviz's USP is adding astonishing visibility to otherwise innocuous sports equipment. The PixElite fabric on the back of the gloves is covered in tiny, highly reflective dots. When hit by a car's headlight, it lights up - perfect for signalling. The gloves themselves are nothing special, with snugly fitting Lycra cuffs and moderate padding. We'd be happy at £20, so that leaves you to decide the value you attach to added visibility, which, although impressive, still leaves them feeling dear. provizsports.com



Smart fingers Finger pads

What to look out for when choosing cycling gloves



Minimal seams A smooth lining to prevent rubbing

or chafing.

Reinforcing at areas that see the most action, around the thumb and across the base of the

fingers.

Gel padding to help absorb the shocks of the road and prevent pins and needles.

Thermal and wind **protection** Technical fabrics that keep the elements out but let your hands breathe too.

Grippy palms

A tacky surface for maintaining contact with the bars even in the wet.

Long wrist-cuffs to stop the wind wriggling its way up your sleeves.



Craft Storm

£32

A firm favourite among the BikesEtc team since first appearing way back in our first issue, we were excited to see how the Swedish brand's gloves stacked up against this season's crop of highfalutin newcomers. Expertly cut and made of thin soft-shell fabric that combines excellent water-resistance and windproofing with low bulk, these are a seriously dexterous pair of gloves, something enhanced by the total lack of padding on the palms (instead there's a silicone print that gives a decent grip). Neoprene cuffs are close fitting to keep out the rain but never feel restrictive. Stealth black looks are offset by a slim strip of reflective piping across the wrist-and the towelling pad on the thumb actually works as a nose wiper. craft.se







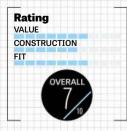


Thin, simple and cheap, these gloves will suit riders looking for a minimum of padding. With tops made from wind- and water-resistant fleece-backed fabric, they'll keep the worst of the elements off. Covered in grippy logos, the palms are constructed from material that feels similar to the uppers but without its barrier-like properties. Along with stretchy panels down the fingers, these add breathability. The cut may be simple but their low bulk helps guarantee a close fit. todayscyclist.co.uk





The nimblest glove on test, the Windgrip manages this impressive feat by employing a stretchy Lycra palm, which makes them even less restrictive than the average thin summer mitt. On the flipside, even as fans of minimal padding, we found the lack of cushioning disconcerting and wouldn't fancy putting abrasion resistance to the test on a tumble. Overall, fit is good with the exception of the roomy cuff. Fabric is breathable, although combined with the palm, these are for cool, not glacial weather. 🚜 polaris-bikewear.co.uk



MUDGUARDS

There's no need to fear the wet with a road-bike fender – and what's more, they're a statement of politeness

Watching a frozen and bedraggled peloton slog through the rain from the comfort of your sofa is one of cycling fandom's guilty pleasures. If you've the motivation to rouse yourself from the couch and go out into the elements, chapeau! However, if the sky looks foreboding, you can take one precaution the pros can't and strap on some mudguards. Dorky they may be but you can bet the domestiques in the bunch would be using them if they were allowed.

You'll not only be doing yourself a favour. A face full of spray from the rider ahead may be the impetus you need to stop wheel sucking, but on winter group rides, mudguards are good manners. Your bike will be happier too as it's not just people that suffer when blasted with water. Mudguards reduce wear to your brakes, headset and front derailleur. Here are six to fit allcomers.



Genetic Carbon Stay Micro Fender

£47.50

Weighing a scant 72g, it's pretty obvious that this miniature fender isn't going to offer anything like the coverage of the others on test. It is designed to intercept the arc of water coming off your rear wheel at exactly the spot where it would be aimed right at your lower back. The carbon spar holding the fender itself fits under the quick-release skewer and adjusts via a series of reassuringly secure pivoting ball joints. It's fairly easy to install with a few turns of an allen key. Once in place, it's rattle-free and certainly looks cool-the glorious lines of your bike are barely affected - but there's no escaping the fact that almost £50 is a serious investment. However, once adjusted, it blocks a surprising amount of spray, more than an under-saddle mini fender, but still less than anything else here. ison-distribution.com

Crud Roadracer Mk2

£30

These full-length mudguards are svelte thanks to their unique floating design. Instead of relying on rigid stays to hold the blades in place, they employ small brushes that run alongside the rims. These centre the guards and although there's some contact between fender and wheel, any additional noise or drag is imperceptible. Built from numerous pieces, initial set-up can be fiddly and

you'll need decent clearance between brake and tyre. Once in place, we got the wheels spinning freely, although the fixed sizing means they may not play well with disc brake-equipped frames. Out in the wild, they have a tendency to shift out of position causing them to rub. You'll also want to keep an eye on the fixings lest you start to shed bits along the roadside. madison.co.uk





SKS Raceblade

German manufacture ensures the Raceblade is robust enough to endure many winters before disintegrating. Tough steel stays, nylon fixings and additional fittings for aero fork blades mean they'll fit most frames. Affixed via stretchy rubber straps, they're easy to set up but still benefit from being lashed down with additional zip ties for absolute security. Once wrestled into

position, you'll also need to pin the blades to the stays with the included screws. Although they're truncated at the brake callipers, the protection offered is almost comparable to full-length mudguards thanks to the elongated rubber gaiters, although the lack of coverage between the rear brake and chainstays means spray may find its way to your ankles. zyro.co.uk





Topeak Defender RC1/RC11

Having installed a clever little grommet into the back of your fork crown where the brake bolt sits, Topeak's Defender mudguard, made of high-impactresistant plastic, snaps on and off in seconds. Perfect if you're too vain to leave guards on your bike when the weather turns less threatening. While the front guard will mitigate the worst of the spray, don't expect its miniature size to offer

anything like the coverage of a longer alternative. You'll still end up with wet feet. The less sleek-looking rear guard is more effective, fending off spray thrown by the rear wheel and preventing your back becoming striped. It won't do much to protect your bike or any riders following behind, though. However, a polished underside makes cleaning easy. extrauk.co.uk





ETC Trekking Quick Release

Lots of different points to adjust means getting these guards into the right position is easy, but having them stay there is an entirely different matter. Although visually similar to the alternative from SKS, they're less secure in their mounting - the tapering profile of most fork blades presents a particular problem and causes the front guard to annoyingly shuffle downwards during

use. Coverage is also less than on similar-looking devices. In the Trekking's defence, they're not going to break the bank and they won't steal too much of your time to set up, although once on the bike, keeping them on the straight and narrow requires constant fiddling. Not ideal when, in your mind, you're making a break from the pack. todayscyclist.co.uk





Axiom Rainrunner 360 Reflex

A standard set of full-length mudguards, it's the addition of four 'axle runners' that allow these to fit bikes without traditional eyelets. Like all conventional guards, you'll get excellent coverage and steadfast fixing, although at 40mm wide, you'll need a frame with ample clearance and fixing points on the back of the fork and seatstay bridge. Sandwiched between the quick-release skewer and

frame, the axle runners are securely anchored, albeit at the cost of slow wheel changes. The blades feature reflective stripes to boost visibility. Fitting and adjustment are painless, while multiplefixing points and nyloc hardware mean there's little chance of movement. They wont fit many racier bikes but if they fit yours, these are a sound choice. 🗞









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"The Tacx NEO Smart is the ideal trainer: widely compatible with multiple devices and software, no sound, no maintenance and above all extremely powerful and accurate. After experiencing it in the Tour de France I definitely want it to become my standard training equipment as it is the best fit for my needs."

Alberto Contador





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ECONONY LIGHTING

Can you cut the budget without cutting safety and performance? We tried 10 sets of affordable lights to find out

The onward roll of technology means most modern bike lights are small, bright and often blindingly expensive. While dazzling Cree LEDs pumping out hundreds of lumens are very cool, it's possible you'd rather not break the bank -or fry the retinas of other road users. We've rounded up 10 sets of commuter-friendly lights, all £35 or under, that are bright enough to keep you safe on the road at night but won't leave you bankrupt.

Our test comprises a mix of USB-rechargeable and battery sets. While a pair of Duracells might seem an oldfashioned way to power your lights, these models can often represent better value for money, tend to last longer before they need replacing/recharging and can be topped up easily if they should die while you're out riding. On the other hand, the convenience of USB charging means it's easy to keep your lights topped up simply by plugging them in to your computer while you're at work. Take your pick...

Spaceship 3& Radbot 500 Set

£30

We were quickly won over by these lights despite their chunky size and dated looks. The halfwatt Radbot rear LED, which runs on two AAA batteries, is seriously bright and the clever lens design means it blasts out the levels of light we'd usually associate with more pricy alternatives. The integrated reflector may be the sort of thing usually found on shopper bikes but it adds visibility even when the light isn't operating. The hefty front Spaceship 3, which uses a pair of AAs, straps on readily and also kicks out an above-average beam. paligap.cc



Although slightly chunkier than some other lights using slimline CR2032 batteries, these are still nicely put together with the entire face of the light acting as the on/off switch. Held in place by a stretch rubber band, they're secure once on, although you're limited to using them on the handlebars or seatpost. Easy to operate even with gloved hands or frozen fingers, they'll throw out a just-about-acceptable amount of light, although they're outperformed by most of the others on test, leaving us feeling a little vulnerable out on the road. extrauk.co.uk



Knog Pop II

£19 front £14 rear

The budget option in Knog's lighting line-up, these are powered by AA batteries and look very much like children's toys or fireworks, which is quite charming in something as otherwise mundane as bike lights. Running at full gas, the twin front lamp's 35 lumens dwarf the output of the tail-light. It'll just about light your way down a dark alley, but it eats up batteries, meaning you're better saving the high beam for special occasions and keeping it in economical flash mode the rest of the time. The integrated silicone straps are easy to fix and secure once fastened. Both lamps benefit from additional side visibility thanks to illuminated panels. todayscyclist.co.uk





Lezyne KTV Drive Pro Set

£35

As we've come to expect from Lezyne products, the KTV lights are reassuringly sturdy, designed to cope with the rough and tumble of everyday use, in all weather. With 70 lumens output at full power, the front light has six settings to optimise brightness versus run time, while the rear has three settings and is decently bright despite a modest-sounding seven-lumen output. Both are mounted either with the integrated belt clip or a sturdy silicone rubber strap. and removing the rubber end cap reveals an integrated USB plug for charging (no cable required). We found it tricky to fit them into computer USB ports, but that's a minor niggle. upgradebikes.co.uk



ETC Super Bright & Tailbright Duo Twinset

£25

Employing two exceedingly bright half-watt bulbs, the Tailbright is the most powerful rear unit on test and the front is fairly punchy too. Running on five AAA batteries between the pair, the lights themselves are of decent enough quality, but are let down by the brackets which feel insubstantial, are fiddly to fit and come with a baffling array of shims. Given the rear light's diminutive size and weight, the lack of a belt clip-which would allow you to attach it to bags or clothing-feels like an oversight. Good lights let down by sub-par fixings. todayscyclist.co.uk





LifeLine USB LED Double Beam Light Set

£30

These lights from Wiggle's in-house accessory brand have been a favourite in the BikesEtc office for some time for their good value, sturdiness and ease of use. Their USP is the independently operated twin LEDs, each with three settings (high, low, flashing), giving you loads of options for how to use them, with a mix of on or off, steady or flashing. With both beams on full, the front puts out 80 lumens, so is bright enough to see by, as well as for being seen, while the rear offers 30 lumens. Both will keep going for a good while between charges. wiggle.co.uk



FWE LED Light Set

£20

Evans Cycles' own-brand lights are the definition of cheap and cheerful. The front light is surprisingly lightweight even with its two AA cells inside, though we suspect the thin plastic shell might not withstand knocks too well (we avoided dropping it during testing to be on the safe side). The on/off switch is a little temperamental too, but this is a decent light with an impressively bright claimed 100-lumen output on full power, plus low and flashing modes. The 20-lumen rear light takes two AAA cells and offers the choice of a belt clip or adjustable seatpost bracket fitting. evanscycles.com





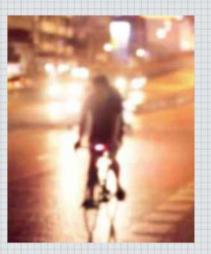
Guee Tadpole Light Set

±33

Tadpole is an appropriate name for these, with their integrated sturdy rubber strap acting as the 'tail' on the svelte body of the light. Despite their diminutive size, the four LEDs in both front and rear are impressively bright, though not really bright enough to see your way on unlit roads. But fitting or removal takes mere moments, so they're a great choice to carry as emergency get-you-home lights. The USB charging ports, often a weak spot in lights where water can get in, are neatly tucked under the strap, so well protected from the weather while riding. Run time is up to a claimed seven hours on flashing mode. i-ride.co.uk

TO FLASH OR NOT TO FLASH?

It's a debate that divides night riders -should you have your lights flashing, or keep them on constant beam?



There are good reasons for having your lights blinking. Many riders believe that having flashing lights on your bike makes you more noticeable to other road users. Another argument is that the batteries last longer in flashing mode compared to using a constant beam. In the past, the filament in a light would need to heat up and then cool down to create a flashing effect - an energy-inefficient process but with LED lights, flashing mode can double the output time for a light.

However, there are good reasons not to flash. If you ride in a group at night, the unwritten rule is that your rear light should be kept on constant. For the rider behind, staring at a flashing red bulb for anything more than a few seconds is enough to send them into an optical spin.

Until recently, it was actually illegal to have flashing lights on a bike. In 2005, British law was changed to allow cyclists to use flashing lights, however they must conform to strict regulations that state: If a light is capable of emitting a steady light then it must conform to British Standard BS6102-3, even if used in flashing mode.

- Purely flashing lights are not required to conform to BS6102-3, but the flash rate must be between 60 and 240 equal flashes per minute (one to four per second) and the luminous intensity must be at least four candela. (A candela is a unit of light intensity.)
- The Highway Code says that 'flashing lights are permitted but it is recommended that cyclists who are riding in areas without street lighting use a steady front lamp'. We say flash if you want to, just be wary of dazzling others. 36



rubber straps that attach them isn't huge, although the profile of the lens means they remain visible from wide angles. The diminutive micro switches on the lights can be fiddly and don't lend themselves to being operated while rolling. On the other hand, they're unlikely to get turned on accidentally in your bag. The rubber straps can be fussy to take on and off. particularly on oversize bars or seatposts, although once in place, they won't come off. zyro.co.uk

Blackburn 2'fer

£17 each

This clever little light doesn't care whether it's coming or going. That's because at the push of a button, it can switch between red or white. Although they're happy enough strapped to a handlebar or seatpost, their rubber strap can also be detached to reveal a belt clip, so they're also perfect for attaching to bags or helmets. Just about bright enough to be a sole light, they're ideal for supplementary visibility. Charging via a micro USB, they'll last for up to five hours before needing to be plugged in. Coloured indicator lights let you know how much juice is left. zyro.co.uk



Tools so tiny you'll forget they're there... until you need them

If you don't fancy a long walk to the nearest train station the next time your bike malfunctions, you should probably take some tools with you. However, the chances are you're more likely to be changing a punctured inner tube or fiddling with your saddle height than

attempting to repair a broken frame, so a full set of ratchet spanners and a brazing torch might be overkill. With space in your pockets at a premium, we've selected eight stripped-back minitools that pack in just the essentials, while keeping size and weight to a minimum.





Passport Fastpass

£7 Weight: 106g

Being the cheapest on test, we can forgive this tool its slightly chubby size and weight, especially when it comes with a bottle opener to help you crack into some post-ride refreshment. The short, wide body means there's not the leverage of other options but the elongated bits go a long way towards making up for this. There are nine tools, ten if you count the bottle opener, which is a virtual smorgasbord in this test. Allen keys 2-6mm (including 2.5mm) are included, as are a Phillips and flathead screwdriver and a T25 Torx. It looks like it probably comes from the same factory as the Super B (below) so it would have been nice to see a spoke key too. Not that we're complaining – there's enough change from a tenner to get a bottle of beer for that cap opener. ison-distribution.com

Rating

TOOL QUALITY
RANGE



Super BTB-9870

£12 Weight: 121g

Nestled between the parallel racks of folding tools is a push-on 8mm allen-key adaptor that means this is one of the few micro tools that will let you change most pedals or crank bolts. Cunningly, it's magnetic so it stays in place, although we can still imagine it going missing in a bag. Cut into the end of the housing is a spoke key that's surprisingly agreeable to work with (assuming it fits your wheels). There's one either side of the tool but both are the same size, which feels like a missed opportunity to cram in an additional function. There's no Torx key, which is a shame given the increasing use of Torx bolts on bikes. Allen keys 2-6mm are present (including 2.5mm), as are a Phillips and flathead screwdriver. todayscyclist.co.uk

Rating

TOOL QUALITY
RANGE
SIZE





Reviews Etc

Topeak Mini 9 Pro Carbon

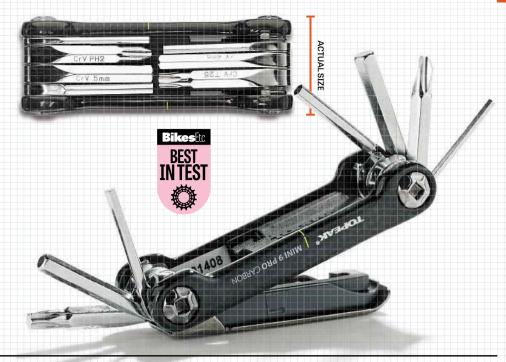
£30 Weight: 73g

With its rounded carbon body, the Topeak is as nice an object to hold as it is to look at, but then again it should be for £30. The bits are all of a decent length for fiddly jobs and are made of quality metal that should remain sharp for years. There are five allen keys - 2-5mm - plus a T25 Torx and Phillips screwdriver, although no flathead. The back of the tool houses a robust, plastic folding tyre lever, while the compartment door forms a second lever; because it's metal, we wouldn't trust it on fragile rims. Excellent ergonomics and a comfy fit in the hand mean that there's a surprising amount of leverage. If you can live without a chain tool, this could easily become your everyday carry. extrauk.co.uk

Rating TOOL QUALITY

RANGE SIZE





ACTUAL SIZE

M: Part MT8

£10 Weight: 62g

Incredibly svelte, this low-profile mini tool is unlikely to trouble the lining of your jersey if popped in the pocket. Constructed entirely from steel, it still manages a fairly meagre weight (62g) due to its diminutive size, and includes the usual favourites: 2.5-6mm allen keys; T25 Torx; and Phillips and flathead screwdrivers. While lacking the sharpest edge, none of the eight bits showed any inclination towards rounding off during our testing. The bits are just long enough to not make working on the bike a chore, there's also enough leverage for most common cycle maintenance tasks. A key ring would have been a nice addition - but it's small and slim enough that you could probably even slip it into your wallet. madison.co.uk

Rating

TOOL QUALIT RANGE



Pro 8 Function Mini Tool

£18 Weight: 83g

Ingeniously, Pro has managed to squeeze an 8mm allen key into the slimline aluminium body of its minitool. It's not really an allen key, but a flat blade that will fit into the same space as an 8mm allen key. It may struggle to remove the most recalcitrant of pedals, but it'll certainly tighten a loose or squeaky one. The rest of the space is taken up with allen keys between 2-6mm (including 2.5mm) and a Phillips screwdriver. There's no flathead or Torx key, which is either irritating or irrelevant, depending on the type of bolts your bike has. It's nice to look at, although we did find the shiny silver tool bits a little on the soft side, so it pays to avoid being too heavy-handed. madison.co.uk







JetBlack Multi Tool 6

This tool makes up for its relatively limited selection of functions and comparatively spacious design by being very straightforward to use. Good length to both the body and the bits makes getting purchase easy, while the machined alloy faceplates look good and provide plenty of control. The bits themselves - allen keys 2-5mm, T25 Torx and Phillips screwdriver - are made of particularly tough steel and have neatly chamfered edges. They should resist burring or rounding off regardless of how roughly you treat them. Although the JetBlack isn't as petite as some minitools, we were fan sn evertheless. Simple, uncrowded by superfluous add-ons and of a decent size, this is an ideal tool for everyday use. chickencycles.co.uk

Rating

TOOL QUALITY

RANGE







Park Tool AWS-13

£12 Weight: 51g

This key fob-sized tool gains instant kudos for looking exactly like a miniaturised version of Park's standard workhorse multitool. The signature blue housing seems to be exactly the same as on its bigger siblings and is easily stiff enough to exert a decent amount of leverage on the surprisingly comfortable body of the tool. The bits themselves aren't quite of the usual Park quality but still better than many. With only five tools on offer, some serious rationalisation was always going to be necessary but with the three most common allen keys (3-5mm), a T25 Torx and a flathead screwdriver that also doubles up for jimmying apart stuck disc callipers, they'd be our top-five picks anyway. madison.co.uk

Rating TOOL QUALITY RANGE



Axiom Tweak 8

£10 Weight: 48g

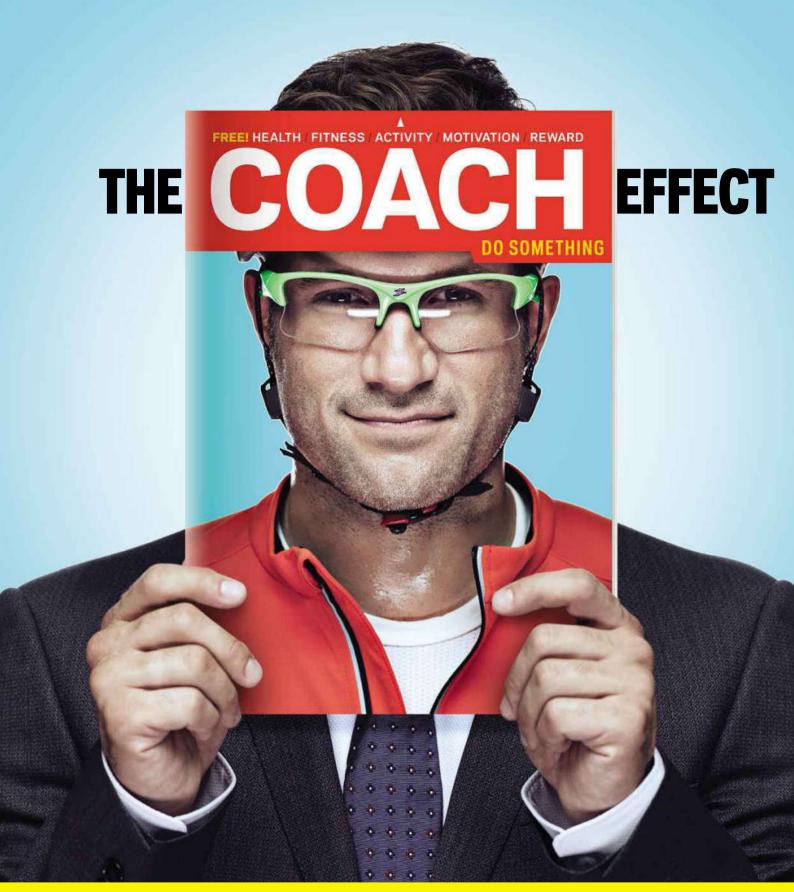
Taking up about the same space as a couple of pound coins, this microscopic tool comes with a loop to attach to your keys, meaning it's always with you. As well as being handy out on a ride, you'll soon find yourself using it for all sorts on non-bike-related jobs. Despite its diminutive size, it still packs in eight tools (2-6mm allen keys, T25 Torx, flat and Phillips screwdrivers), all of which are rendered in decent-quality chrome vanadium steel. Regardless of what they're made of, though, you'd struggle to round them off due to the lack of leverage, which is the tool's main downside. It's fine for small jobs, but unless you've got fingers of steel, you wont be shifting any seized saddles or loosening any chainring bolts.

Rating

TOOL QUALITY RANGE







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£1,300 road bikes

At this price point some brands will offer a cheap frame with great components, while others may present a great frame specced with cut-price gear. Can any of them deliver both? *BikesEtc* puts some big names to the test

WORDS MARC ABBOTT PHOTOGRAPHY JACQUES PORTAL

fyou believe Mick Jagger, you'll accept that you can't always get what you want. But it's only a half-truth. Road bikes vying for your attention in the rabidly competitive just-above-a-grand price range can often employ top-class framesets hung with mix-and-match groupsets, or excel in their moving parts but disappoint with sluggish frames or weighty wheels. So we've brought together four bikes from big brands to see whether you really do

need to compromise at this end of the market.

Trek's £1,300 Émonda S5 isn't the out-andout climber its moniker suggests – it's a sensibly specced carbon all-rounder with a full Shimano 105 groupset. Our other carbon bike, Giant's Defy Advanced 2, costs £1 less, employs disc brakes and mainly 105 equipment, hung on a frame of proven quality. But at this price, you'd be mad not to consider aluminium. Specialized's £1,200 Allez Comp combines hydro-formed tubing and clever frameset construction methods with a rich heritage and an array of differing groupset components. While Vitus has fitted disc brakes to its alloy Zenium SL Pro for 2016, and offers a fully Shimano Ultegra spec bike for a remarkable £1,350. So where's the catch?

To find out which of these four bikes provides the best overall package with the least possible compromise, we subjected them to the usual exhaustive *BikesEtc* test protocols.

SPECIALIZED ALLEZ COMP SMARTWELD £1,200 GIANT DEFY ADVANCED 2 £1,300 TREK ÉMONDA S5 £1,350 VITUS ZENIUM SL PRO DISC £1,350





HOW WETEST

When it comes to testing bikes, we don't take anything the manufacturers tell us as gospel: the first thing we do when a new bike arrives is to take its measurements and compare our findings with the geometry stated. We also compare the spec with what is advertised -has anything changed?

With the seat and bars moved into roughly the correct positions, we head out to ride a few laps of our local park loop to fine-tune the set-up before the first big test ride. Bigger rides consist of short, sharp climbs, longer seated efforts, descents and a variety of road surfaces.

Every aspect of the bikes' handling and performance is assessed and scored according to our detailed criteria, and then the bikes are passed around the team for an all-important second opinion. Finally those opinions, scores and measurements are collated into the comprehensive reviews you're about to read.

THE OVERALL RATING FOR EACH BIKE IS BASED ON THESE ELEMENTS...

Our in-house testing questionnaire rates frames out of 30, based on geometry, on-road feel, stiffness, compliance, finish and intended use.

We rate components out of 20, based on groupset and finishing kit-great bars and stems will be marked down if they're the wrong size for the frame.

We rate the wheel and tyres package out of 20, weighting it towards the wheels: tyres come and go but wheels are a more expensive element to replace.

Rated out of 30, we take into account ride quality and also value - does the bike do what we expect of a bike at this price? The best exceed expectations.



WB



The frame

Specialized's Allez Comp Smartweld frame is constructed from E5 aluminium, incorporating (as the bike's name suggests) clever welding technology. Its hydroformed top tube and down tube are rolled at their ends, before being welded inside a forged 120mm head tube (easily the shortest on test). The idea is that the rolling of the tubes at this junction creates a stiffer front end,

while retaining the lightest possible overall weight. The FACT carbon fork is the same as you'll find on the firm's high-end S-Works models. With a sharp head angle and a relatively short wheelbase, the numbers promise race-ready agility rather than a leisurely cruise. Although 2mm shorter between the wheels, this bike shares much of its geometry with Specialized's more readily raced S-Works Tarmac, with identical head tube, chainstay and

fork dimensions. Of all the bikes we tested, the Specialized's frame is the most visually pleasing – a sumptuous, brushed alloy finish with pin-sharp detailing and smooth welds all make this bike something to drool over. The question hanging over the alloy construction of this bike is whether the fork and seatpost are good enough to dampen some of the road buzz often more prevalent in metal frames than their carbon counterparts.

It's no wonder Specialized hasn't painted over its welds - they are as smooth and neat as you'll find on an alloy bike

Components

Specialized has fitted an FSA Gossamer Pro compact chainset to the Allez. It gives away a bit of weight to an equivalent Shimano 105 set-up, but in our experience it has proved to be durable over time, if a little workmanlike in its operation. Married to 11-speed 105 shifters, with its gear cables running externally below the down tube, barrel adjusters allow for easy adjustments on the go. An 11-28 105 cassette gives the Allez an identical gearing range to the Trek and Vitus bikes in this test.

Above the top tube, all you see is Specialized's own finishing kit, and some of it is spot-on. The Body Geometry Toupe Sport saddle is one of the most comfortable perches we've ever used (we know top-level racers who won't use anything else). The Specialized stem and compact bars combine with the short head tube to create an aggressive riding position that some will love, but others may find uncomfortable on long days out.

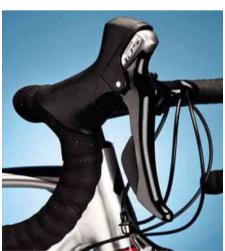
The overall impression is that the components are decent but could do with upgrading to match the frame.

Wheels

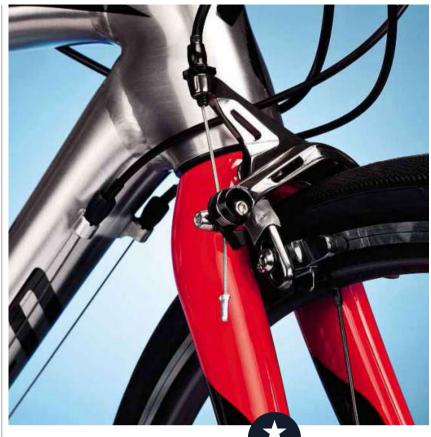
The Axis 2.0 wheelset is only available on Specialized bikes -you can't buy them separately from a dealer-but they'd be one of the first things we would upgrade. Our set, with Specialized's own Espoir Elite tyres, tipped the scales at 2.98kg, which is pretty hefty, although they give the impression of being highly durable. If the weight wasn't already a sticking point, we also encountered some rub from the rear on the Axis rim brakes fitted to the Allez when lumbering up some steeper climbs. Performance of the brakes was more than satisfactory, however. Those Espoir tyres, although again not the lightest, proved punctureproof throughout our testing, and offered surprising amounts of grip, especially on damp roads.

The ride

Just 10 miles into a 50-mile test loop, it's already obvious this frame is the stiffest, most purposeful of the bunch. It honestly feels as responsive as Specialized's own Tarmac race model. Sharing its geometry with the Tarmac also creates a head down, bum up riding position, perfect for



Shimano 105 levers are married to an FSA Gossamer Prochainset that adds a touch of weight but remains robust and reliable



attacking corners, rather than rolling round them. Great if you're a rapid rider; perhaps a little wearing for long days in the saddle. Vibrations from the road are isolated to a degree by the excellent carbon fork, but not eliminated totally when riding on the hoods. The stiff alloy stem might have something to do with that. The feeling of connection with the chainset that we experienced on the Trek's 105 set-up isn't there on the FSA unit, either. We could sit on that Toupe saddle all day, though.

Although the groupset is a little mix-and-match, the Allez Comp has all the makings of a reliable bike for year-round riding. The frame offers a sound basis for a great bike; with some sensible upgrades further down the line, this is certainly a bike that will grow with you. With its aggressive geometry it could even be the bike to start your race career, if you were thinking of taking the plunge next spring.



RATING

FRAME

High quality alloy with a racer's geometry

COMPONENTS

Decent kit but not at the level of the frame

WHEELS

Robust but heavy-ripe for an upgrade

THE RIDE

Nimble and sporty, it begs to be ridden fast

OVERALL

The geometry creates a head down, bum up position for attacking corners

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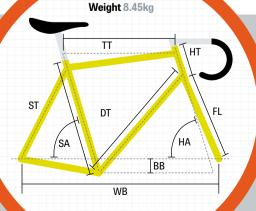
Giant's disc-equipped Defy Advanced 2 is designed with endurance in mind; it's a bike built to take on long days in comfort, while retaining the ability to excite along the way. Claimed to deliver speed and control by way of its relaxed geometry and mechanical disc brakes, its defining feature is its compact geometry, with a sloping top tube and tiny rear triangle, aping that of the firm's bikes first supplied to the ONCE pro team in 1997. In this mid-range incarnation, we're interested to see if the components live up to the promise of the frame.



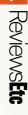
GEOMETRY

	Claimed	Measured
Top tube (TT)	530mm	530mm
Seat tube (ST)		462mm
Down tube (DT)		624mm
Fork length (FL)		374mm

Head tube (HT)	145mm	145mm
Head angle (HA)	72°	72.2°
Seat angle (SA)	74°	73.4°
Wheelbase (WB)	990mm	986mm
BB drop (BB)		72mm



Size tested S





The frame

Made from T700 carbon fibre, the most noticable aspect of the Giant Defy frame is its steep top tube leading to a compact rear triangle. The idea is that a smaller triangle is a stiffer triangle, so less energy is wasted when pedalling. To tune out any harshness from the ride, the frame uses Giant's flexy D-Fuse seatpost (so named due to its D-shaped profile). A tapered steerer combines with a super-fat 145mm

head tube to increase stiffness at the front end (this influences how well the bike steers). The frame is identical in material and construction to that found on the high-end Advanced Pro range, albeit with a different paintjob. The longest wheelbase of any of the bikes on test hints that agility is not the Defy's raison d'être, it's designed for long-distance comfort. That's confirmed by a fairly shallow head tube angle, which means that the Defy is less likely

than the others to offer quick steering, but should help with overall stability. With all the cabling, excepting that of the front disc brake, internally routed, the overall impression is of clean lines and high-gloss finish. This impression is marred only by snipped cable-tie fastenings attaching the brake cable to the left-hand fork blade. Although our test bikes came equipped with 25mm tyres, there's easily clearance for fatter, comfier 28mm.

Big 160mm rotors mean stopping won't bea problem, even in the wet, but add to the weight of the wheels

Components

Giant has equipped the Defy Advanced 2 with Shimano 105 shifters and mechs, which is a quality set-up. However, the chainset is a lower-spec Shimano RS500 on the grounds of cost. The Defy has the widest gearing range of any of our bikes, with a lowest ratio of 34x32, suitable for even the steepest of climbs. TRP's Spyre mechanical disc brakes are used front and rear, and are about as good as it gets without going hydraulic. The 160mm discs ensure huge amounts of stopping power and are easy to fine-tune using the barrel adjuster. The seatpost is particularly easy to adjust thanks to its D-shaped profile - no more fiddling with one eye shut trying to get the saddle in line with the frame.

Wheels

Giant's own-brand PR-2 disc-specific wheelset has a 30mm deep rim and rejects the bolt-thru axle approach taken to discs by some manufacturers. Although generally accepted to improve stiffness while reducing flex, bolt-thru axles (unlike a standard quick-release) require you to remove the entire skewer before removing the wheel. We encountered no noticeable flex in these wheels; they're solid. Which leads us to their weight. With the rear 11-32 Shimano 105 cassette attached (but skewers removed) they weighed in at 3.3kg. This did shed some light on their lack of urgency when sprinting for signs and there was a certain sluggishness when seated climbing up steeper inclines. On the positive side, Giant's P-SL1 tyres, with front and rear-specific compounds, are confidence-inspiring enough for rapid descents and offered reliable performance in the wet, too.

The ride

There's one star of the show here - the frame. The meaty intersection of bottom bracket and chainstays (which Giant dubs the PowerCore) provides a solid expanse of T700 carbon that takes whatever you throw at it - standing-start sprint, time-trial effort, big-ring hill climb... The solidity of connection at the pedal stroke, aided by high, box-section chainstays, really is impressive. It adds exhilaration to comfort on the Defy's list of attributes. A 50-miler on iffy tarmac highlights the compliance of the frame's flat, wide seatstays and D-shaped seatpost in isolating road buzz, too.



The vast bottom bracket shell ensures that your pedalling efforts are translated efficiently into forward motion



The TRP brakes are an easily modulated set-up and more than good enough in this package. Steering is accurate; not lightning-quick, but definitely good enough to inspire a gradual increase in cornering speed as we travelled round our test loops. Stacking all the spacers on top of the stem got us in a more aggressive position instantly, and improved the feeling of connection in corners. And those bars are a deeply padded joy to hold, gloves or no gloves. However - and here's the catch - if you're planning a hilly sportive any time soon, you'll find bikes with lighter and more responsive wheels. It's a shame that such an A-grade frame can't be matched by its components, but then if everything on this bike was as good as the frame, you'd be forking out around £3,000 for it. In short, great geometry and frame design is let down by sluggish wheels. As is so often the case, it's all about compromise.



RATING

FRAME

The compact geometry makes for a fast, stiff ride

COMPONENTS

Quality brakes and a buzzreducing seatpost

WHEELS

The low point of the buildheavy and slow to respond

THE RIDE

A great partner for all-day outings rather than racing

OVERALL

If everything on this bike was as goodastheframe you'd beforking out around £3,000





This 105-equipped carbon package packs a punch



About the bike

When Trek launched its ultralight Émonda range to an awestruck public last year, all the attention was focussed on the top-end Émonda SLR10, which claimed to be the lightest production bike in the world. Sadly it came with a heavyweight pricetag of £11,000. The Émonda S5 we have here is the second rung on the company's 19-model range – built to hit a more accessible price point but retaining the DNA and the exact geometry, of the mountain goat-like Émonda SLR range-topper. But does it lose anything in translation?

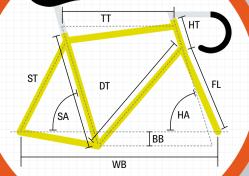


	Claimed	Measured
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Seat tube (ST)	493mm	485mm
Down tube (DT)		614mm
Fork length (FL)		374mm

Head tube (HT)	140mm	140mm
Head angle (HA)	72.8°	72.9°
Seat angle (SA)	74.2°	73.1°
Wheelbase (WB)	977mm	973mm
BB drop (BB)	72mm	75mm

ÉMONDA

Size tested 52 Weight 7.89kg





The frame

Trek's Émonda frame, in this guise, is constructed from 300-series OCLV carbon, which doesn't offer quite the same stiffness-to-weight and vertical compliance advantages of the top-of-the-range 700-series, yet holds its head high in this company. The overall weight of 7.89kg for the S5 makes it the lightest bike in this test, even using this heavier composite material. Higher-spec models in the

range give you the option of choosing a more aggressive 'H1' fit, or more endurance-specific 'H2' geometry. The S5 comes only in an H2 version, with a tapered head tube 30mm higher than the H1, and a fractionally shorter seat tube. Retaining the same head tube angle as the H1 geometry, the overriding sensation is of a more upright position, but not at the expense of cornering agility, which this bike has in spades. Trek's use of 23mm tyres in this package

might buck the 'wider is better' trend, but there's easily clearance for 25 mm if you feel the need to upgrade. External cabling may not be as pretty as internal, but it helps keep weight down and makes life easier when it comes to making adjustments or replacing cables later on. In all, it's a far cry from the 690g all-singing Émonda SLR's set-up, but for £1,300, and on a bike equipped with a full 105 groupset, it's an easily digested compromise.

A full Shimano 105 groupset, with no compromises, means shifting is crisp and braking assured

Components

When it comes to groupsets, consistency is key. Often a manufacturer will mix and match parts to keep costs down, but Trek has gone the whole hog on the S5, with a complete Shimano 105 groupset, right down to the chain and cassette. As you might expect, it's a sure-fire hit. Ultegra and Dura-Ace might be lighter and slicker, but the differences are pretty small. A compact chainset allied to an 11-speed 11-28 cassette ensures a spread of ratios ample for most applications, leaning toward climbing, but with a high enough top gear for blasting downhills.

In-house brand Bontrager's bars and stem offer a good fit and there is minimal flex in them, which is telling on rougher roads when vibrations make themselves known. A single, angled seat adjuster on the saddle helps to make fine-tuning position easy, too.

Wheels

The Émonda S5 rolls on tubeless-ready Bontrager TLR wheels - a £230 aluminium wheelset that should prove versatile in use. Offset spoke beads are claimed by Bontrager to improve stiffness and stability, and our impression was one of all-day comfort and reliability. They proved stiff and impressed greatly when performing hill sprints. Overall, they're a solid choice for this bike, offering not only a versatile platform wherever you're riding, but also the option to upgrade to tubeless tyres at a later date for reduced rolling resistance.

Braking pressure of the 105 rim brakes on the TLR's alloy surface was sharp when required, and offers decent levels of control. The company's R1 tyres also showed themselves to be light and fast rolling, and the puncture protection material ensured our test rides were flat-free.

The ride

Our test routes on rolling roads and the short, sharp climbs typical of the UK, proved revelatory. Don't think of this bike as an out-and-out climber like its big brother; consider it an all-rounder of the highest order, equally at home sprinting out of a valley as it is rolling in comfort for hours on end. The pedalling efficiency provided by a fat BB86.5 bottom bracket and the feeling of assured front-end stiffness and



Wheels are often the letdown in a build at this price point, but Bontrager's TLRs proved to be stiff and light



accuracy of handling promoted by the bulky head tube and down tube give this bike a serious edge over most at this price. It combines biddable cornering ability with deceptively rapid progress, those 23mm tyres even absorbing the majority of road imperfections, too.

The S5 is the quietly-spoken new boy at school who turns out to be a black belt in karate. Gear changes are as silky as you'd expect from 105 equipment, and the spread of gears is more than adequate for most all-day rides. From Hardknott Pass to Crystal Palace crit circuit (yep, you could race this bike), the breadth of its talent truly surprised us. Niggles? There are some. A few millimetres of toe overlap from our hardly-clown-like size eight feet was troublesome on occasion, and as we've already mentioned, the bars don't isolate vibrations from the road particularly well. But overall, this package gels very well indeed. 🛷



RATING

FRAME

Light and stiff with a blend of comfort and raciness

COMPONENTS

Shimano 105 throughout is always a vote-winner

WHEELS

Strong performers with an option to go tubeless

THE RIDE

Fast uphill, stable downhill, and comfy over long miles

OVERALL



The sensation is of a more upright riding position but not at the expense of cornering agility

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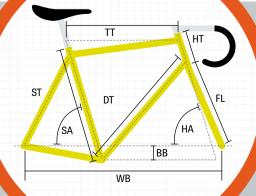


160mm rotor disc brakes, to eliminate flex and further enhance handling and braking performance. Can it really be all these things?

GEOMETRY

	Claimed	Measured
Top tube (TT)	545mm	540mm
Seat tube (ST)	500mm	490mm
Down tube (DT)		630mm
Fork length (FL)		374mm

Head tube (HT)	145mm	145mm
Head angle (HA)	73°	72.7°
Seat angle (SA)	73°	73.4°
Wheelbase (WB)	979mm	979mm
BB drop (BB)	70mm	72mm



Size tested 54 Weight 8.12kg

SPEC Triple-butted 6066 alloy frame, T700 carbon fork Shimano Ultegra TRP Spyre mechanical disc, 160mm rotors Shimano Ultegra 50/34 Shimano Ultegra 11-28 Vitus compact 6061 alloy Vitus forged 6061 alloy Vitus Vitus UD carbon Fulcrum Racing 5 Disc; bolt-thru axle front, QR rear Continental Grand Sport Race 25c chainreactioncycles.com

The frame

The Zenium SL Pro's hydroformed 6066 triple-butted alloy tubes feature an anodised finish that Vitus says is ultra-durable and weight-saving; we found it marks easily and we're not keen on the almost rubberised finish of the decals. While the welds are largely very tidy, the Vitus frame can't match the Specialized Allez for quality of finish and glorious tactility. A T700 high-modulus carbon fork

with integrated tapered headset is aimed at removing harshness from the front end and contributing to assured handling. Gear cabling is external and the seatstays remain unbraced (disc brakes remove the need for a bridge between them) to help dampen vibrations. Meanwhile, the base of the seat tube flares as it meets the bottom bracket, with the intention of adding lateral stiffness in this area to facilitate power transfer.

At first glance, the geometry looks to be a compromise between racy and endurance, which should keep fatigue to a minimum. And although the Continental Grand Sport Race tyres fitted to our test bike are 25c, Vitus claims there's clearance enough to run 28s. What remains to be seen is whether the frame can live up to the promise of the groupset, and if the steps taken to remove the natural harshness of aluminium have paid off.

The TRP mechanical disc brakes are the only deviation from an otherwise all-Ultegra groupset

Components

No, you're not seeing things, the Zenium SL Pro is running a full Shimano Ultegra 6800 groupset (with the exception of TRP's excellent mechanical disc brakes, identical to those found on the Giant Defy Advanced 2, and a KMC chain). This is thanks to the unique business model available to directsell bikes: Vitus is one of internet giant Chain Reaction's in-house brands. Unlike the Allez Comp - the other aluminium bike in this test - the Vitus has a carbon seatpost, though sticks with alloy for the stem and handlebars. The own-brand finishing kit is unexceptional, yet effective. The bars are swept back slightly, bringing the hoods 10mm closer than an equivalent compact road bar. This makes Vitus's choice of a 110mm stem (longer than usual on bikes this size) a smart move. At the business end, there's the ubiquitous 50/34, 11-28 gearing combination, which makes it perfect for tackling Britain's lumpy terrain.

Fulcrum's Racing 5 disc-specific wheels are secured by a 15mm bolt-thru axle at the front and a standard quickrelease at the rear. The benefits of a bolt-thru axle are that it better resists the forces created by the disc brakes when compared to quick releases, and it should ensure a perfect fit of the disc rotor between the brake pads. The wheels and tyres weigh in at 3.12kg, 180g lighter than the Giant Defy's disc-equipped wheels (20g of this will be the difference between a 105 and Ultegra cassette) but still fairly chunky. The other bikes on test all roll on own-brand tyres but Vitus favours Continental Grand Sport Race rubber. It's a sensible choice, known to be good value for handling confidence and puncture resistance (although not quite to the level of Continental's top-end GP4000).

The ride

As you might expect, the Zenium's Ultegra shifters, mechs and chainset are a harmonious combination; shifting is slick, quick and without fuss. Claims of a balanced ride, however, don't ring 100% true. The front end feels very stiff and provides stacks of feedback from the road, while the opposite is the case at the rear. Even with 25c tyres the harshness of the front end meant that we were constantly

changing hand position to relieve our wrists. The carbon seatpost is almost surplus to requirements as the Vitus saddle is so deeply padded it caused us to adjust our usual seat height by 5mm. Seats are always a matter of personal preference, but give us a thinner-padded but anatomically thought-out race saddle any day. The ride backs up the claims for the Zenium's geometry. Long chainstays (420mm) aren't suited to sprinting for signs, but over longer distances the Zenium's wheelbase is puts it somewhere between the relatively stately Giant and spritely Specialized. Strangely, our road rides caused our thoughts to deviate from tarmac. Of all the bikes here, the Vitus is the most naturally suited to what you might call 'all-road' riding. With some CX tyres on its alloy clinchers, it would make a relaxed gravel ride. In brief, we'd have settled for a 105 groupset and a slightly better frame. 36



RATING

FRAME

Harsh at the front end but with intelligent geometry

COMPONENTS

Shimano Ultegra is an amazing spec at this price

WHEELS

Fulcrum Racing 5s are a dependable choice

THE RIDE

Well mannered but neither especially zippy nor comfy,

OVERALL

With some CX tyresonitsalloy clinchers, it would make a relaxed gravel ride



The Zenium SL Pro Disc comes specced with 25mm tyres but has clearance to fit 28s



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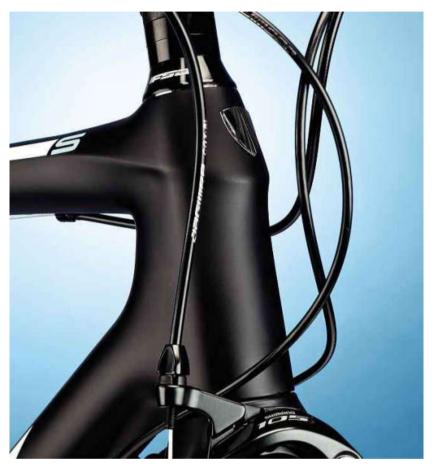


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Trek Émonda S5



Quick, comfortable, versatile-the Émonda is the complete package



hen a great many of us don't have the bank balance to back up our superbike lust, the reality of a road bike purchase is that we're all looking for the best kit our money can buy. And sometimes that involves accepting a bit of a compromise. But while some of the bikes we tested are ripe for upgrading further down the line, do any of us really buy a bike that doesn't suit our needs at the time of purchase?

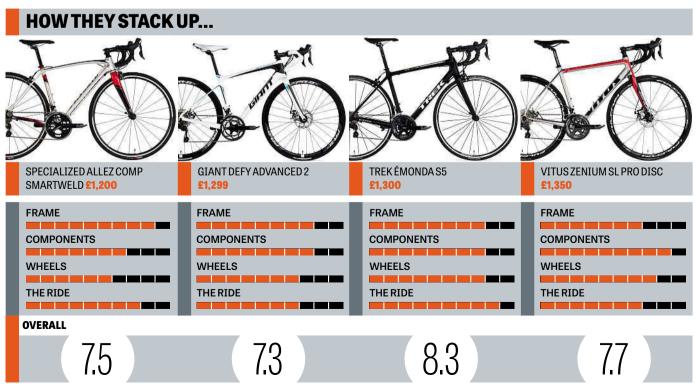
Specialized's Allez has a stunning frame, ready for racing and spirited riding. But its comfort isn't on a par with the Trek or Giant, and we'd look to upgrade the harsh stem and give the brakes and wheelset some serious thought.

Vitus is certain to attract a lot of buyers with its tempting offer of Ultegra at this budget, but the frame didn't rock our world, instead causing fatigue sooner than any other we tested. It's still a very good all-rounder, though, and the shifting really is a joy.

Giant's Defy Advanced 2 is a classic example of how big brands are obliged to compromise to hit a budget. Its frame is the star – a genuinely masterful piece of carbon engineering – but the rest of the bike's components can't live up to its promise. You could double-wrap the bartape and have a shot at the Paris-Roubaix sportive on it, though – it has buckets of compliance and an easy, all-day comfort.

Trek's Émonda S5 is the most well-rounded bike from the off. Its carbon frame is right on the money, offering good ride comfort on UK roads with handling that can still excite. It has the legs on the climbs if you're planning some hilly sportives for 2016, and tops this off with a complete Shimano 105 groupset. We've said it before, and it'll no doubt be said again – 105 is the new black; it's the perfect trade-off between performance and cost.

No bike can hope to be all things to every rider, but with the Émonda, Trek might just have come close.







Stockists

FORGE FIESTA page 20

Pearl Izumi Elite jersey, £70
Pearl Izumi Elite Inrcool
bibshorts, £80
Madison Road Race jersey, £55
Madison Road Race bibshorts, £90
Lazer 21 helmet, £200
all madison.co.uk
dhb Blok jersey, £40

dhb Blok bibshorts, £50 wiggle.co.uk

S-Works Prevail helmet, £160 specialized concept store.co.uk

Bontrager Classique shoes, £200 bontrager.com

£1,300 SPORTIVE BIKES page 88

RST Premium Line jersey, £18 RST Premium Line bibshorts, £35 cycledivision.com

dhb Blok jersey, £40 dhb Blok bibshorts, £50

wiggle.co.uk Alé PRR Bermuda jersey, £90 Alé PRR Bermuda bibshorts, £95

paligap.cc
POC Octal helmet, £225
2pure.co.uk

S-Works Prevail helmet, £160 specialized concept store.co.uk

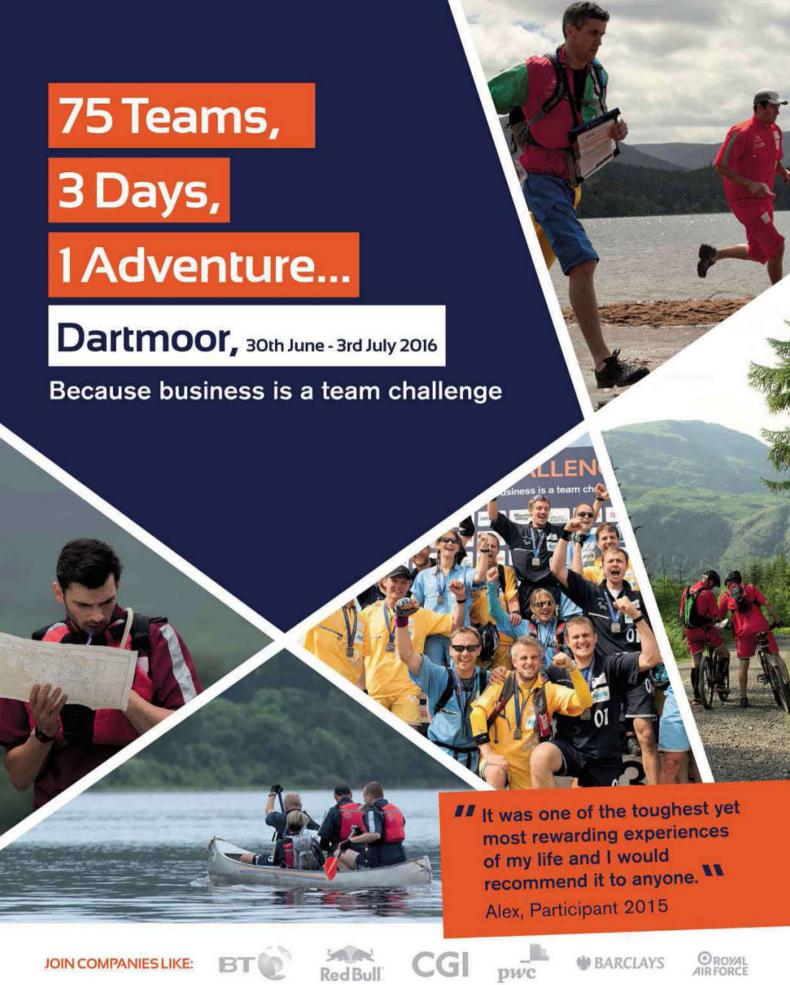
Bont Blitz shoes, £180 saddleback.co.uk

Oakley Jawbreaker sunglasses, £170 uk.oakley.com

POWER TO THE PEOPLE page 112

Wattbike Trainer, £2,250 to buy/ £78 per month to hire wattbike.com

Madison Road Race jersey, £55 Madison Road Race bibshorts, £90 madison.co.uk











Looking to build success in 2016? UKCHALLENGE





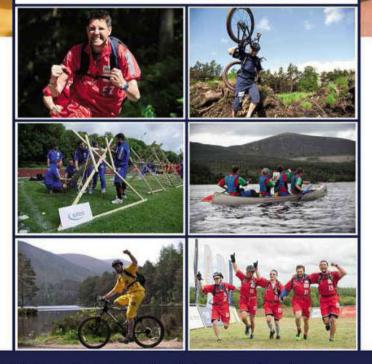
ow would you and your work colleagues fare against some of the UK's leading companies in a battle of body and mind? UK Challenge, the country's leading corporate team-development event, gives you the opportunity to test your physical fitness and cognitive skills against your counterparts at the likes of Airbus, CGI, PwC, RAF and Accenture.

This unequalled experience strategically tests teams over three days and three nights as they run, bike and canoe their way to the finish line, locating checkpoints and solving various puzzles, problems and mental tasks along the way.

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Beat the bonk

Low glycogen leads to fatigue. But the infamous bonk can be avoided...

TOP UP THE CARBS

To keep glycogen levels topped up, a cyclist should consume around 7g of carbohydrate per kilo of bodyweight in the 48 hours prior to a long ride. That's around 560g of carbohydrates (2,240calories). These carbs should come from slow-releasing foods rather than rapidly absorbed sugars. Wholegrain brown rice, sweet potatoes and cereals are best.

CHECK INTENSITY

Up to what's called your 'fatmax', your energy supply mainly comes from body fat. This is around 68-79% of your max heart rate (the fitter you are, the higher your fatmax). As intensity tips over this point, you increasingly rely on precious glycogen. Keeping to fatxmax intensity should prevent the bonk. A heart rate monitor helps to keep tabs on intensity.

ACE OF BASE

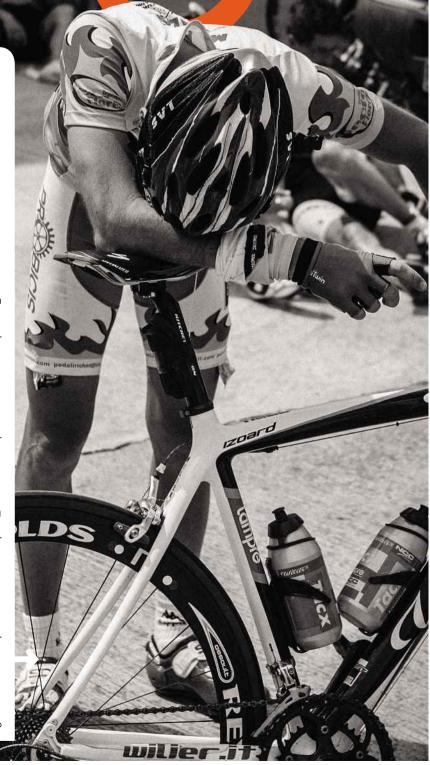
Long, slow winter rides help to build the number of blood capillaries to the working muscles and increase levels of mitochondria (components of your cells that help break fat down into energy), meaning you can use more fat for fuel and save glycogen stores. If you can build to three hours at chatting pace by late winter, you'll ride faster for longer by burning fat.

RIDE ON EMPTY

This one's for experienced, fit cyclists and involves doing two- to three-hour rides before breakfast, fuelled on nothing but water. The idea is that your body has no choice but to become a more efficient fat-burner because there's little glycogen present. If you do try this, keep intensity at around fatmax and have an emergency energy bar to hand.

LAYER UP

According to research from Utah University, your basal metabolic rate rises when it's cold. Though exercise normally compensates, the windchill from cycling can leave you shivering and burning more calories. A layering system comprising a base layer, jersey and jacket helps, along with bibtights and gloves to retain warmth and preserve carbs.







Fix your pedal technique

Riding fixed may be the choice of hipsters, but it can benefit road riders as well

A fixed gear bike or 'fixie' is simply one without a freewheel, which means no coasting – you have to keep pedalling to keep moving. They arouse joy and ire in equal amounts among the cycling community but, whether you love them or loathe them, they do have their benefits.

On a road bike, the chances are that you spend 10-30% of every ride freewheeling. With fixies that's not possible, so you make your nervous and muscular system work much harder,' says cycling coach Joe Beer. A single-speed fixie over undulating terrain will certainly test your quads and calves – some say an hour on a fixie equates to two o na road bike – as well as the efficiency of your pedal stroke.

Because you have to pedal through the entire 360° stroke, you begin to eliminate the deadspot, which reduces wasted energy and transfers it instead through to the road. Even regular short commutes will see a significant change – for the better – in your pedal technique.

A single-speed fixie is also easy to maintain, so far more reliable than a geared bike. Just beware when you start your fixie crusade; riding too far too soon could lead to knee trouble. Take it easy, build up gradually and you'll be trouncing your next sportive.

Power to the people

If you don't use a power meter, maybe it's time to start...

ower meters are useful because they measure how much effort you're generating,' says
Eddie Fletcher, sports scientist and creator of the technologically advanced indoor bike, the Wattbike. 'So you can see how hard you have to work to reach a certain speed.'

Power meters are also cheaper than they once were, with products like the Garmin Vector pedals and Stages Power cranks dipping under £700. Yes, that's not cheap but it's a huge saving over the, admittedly high-quality, SRM at around the £2,000 mark.

To maximise your meter, Fletcher stresses that baseline figures are vital to measure progress over the winter. There are many different tests out there but Fletcher recommends the submaximal ramp test.

'It's not as tiring as a maximal test so can be repeated every four weeks,' he says. 'Warm up for five minutes at 50-60rpm. Then pedal in a seated position for one minute at the starting power - this is around 55 watts for unfit individuals and 100 watts for fitter riders. After a minute, increase power by 15w. Keep increasing by 15w each minute until you can't talk. Now stop. This is estimated to be around 85% of your maximum heart rate. Take note of the power output. Add 60w and this gives you your maximum minute power (MMP).'

This figure is important because you can now plan your training

zones. These are based on your MMP figure and maximum heart rate (MHR). The Wattbike website (wattbike.com) explains these in detail, but broadly there are seven training zones designed to stimulate physiological adaptations depending on the time of year.

KNOW YOUR ZONES

The recovery zone is when you ride at below 35% MMP (or below 60% MHR) and are able to hold a conversation. These rides should last less than an hour. Next is the base zone at around 35-45% MMP. These rides can be anywhere between 90 minutes to four hours. These stretch up to the seventh zone – supramaximal – which is more than 100% MMP and involves

Four-week training plan

Eddie Fletcher's aerobic winter power plan. 'But it can be used at any time of the year'

Week	SESSION 1	SESSION 2	SESSION 3	SESSION 4
ONE	Submaximal test	On Wattbike or turbo trainer, 30min zone 1 (recovery) ride	On Wattbike or turbo, 45min zone 1 (recovery) ride	60mins ride zones 1-3
TWO	90mins zones 1-3	20min warm-up followed by 5 x 4min intervals with 1min rest between. Cadence should start at 80rpm and increase in 5rpm increments throughout each rep. 20min cool-down	On Wattbike or turbo, 40min zones 2-3	90min zones 1-3
THREE	120mins zones 1-3	Same as above	On Wattbike or turbo, 40min zone 3	120min zones 1-3
FOUR	150mins zones 1-3	On Wattbike or turbo, 20min warm-up followed by 3 x 6min intervals with 1min rest. Cadence should start at 80rpm and increase in 5rpm increments throughout each rep. 20min cool-down	On Wattbike or turbo, 20mins zone 4	150mins zones 1-3

The plan is based on four sessions each week, though the shorter efforts could easily be ticked off on a commute. The indoor sessions are more realistic as winter draws in, though maintaining outdoor riding is good for aspects like handling, descending, ascending... and keeping you sane.



very short and nasty intervals.

'Men like to hit the top-end zones but they shouldn't - not now anyway,' says Fletcher. 'If you're doing a 100-mile sportive, you need a good endurance base, so during the winter it's predominantly recovery zone through to zone three. That builds the base you need, which stimulates better use of oxygen, increased fat metabolism and greater bloodflow to working muscles. Throughout spring and summer, you can move through to zones 4 and 5 - or higher if you're fit.' In these zones you're looking

'It's amazing how fit you can become on low-intensity, shortduration rides that gradually increase in length over the winter'

> to add sustainable power, says Fletcher, so you can hold a higher wattage for a longer duration.

HAVE A HEART

Fletcher recommends measuring your heart rate, too, as it's a gauge of how hard your body is working to generate a certain power output. 'A bad night's sleep or illness can have you working too hard to stay in the desired power zone,' he explains. 'That's why power zones and heart rate zones should work together. Move down a power zone if your HR is too high or you won't enjoy the desired physiological effect.'

Fletcher suggests aiming for a cadence of around 90rpm. 'Just move down a gear to hit desired power rather than change your cadence,' he says. If you can get out for two to four times a week, that's great, but consistency of training eclipses one hard effort a month

that leaves you ill. 'It's amazing how fit you can become on low-intensity, short-duration rides that gradually increase in length over the winter.'



Riding in the rain

As well as clipping on a pair of mudguards, you should...

DROP YOUR TYRE **PRESSURE**

Deflating your tyres by 15-20psi from your normal levels will increase the tyre's contact with the road and so strengthen grip. You could also choose wider tyres, such as 28mm, for further contact.

...CHOOSE ALLOY BRAKE TRACKS

'Brakes take longer to work in the wet, so go for an aluminium wheel, where grip is relatively high,' says coach Mark Kleanthous. 'Carbon wheels are notoriously less efficient at braking.'

...AVOIDTHE WHITE LINES

Painted lines on the road and manhole covers can transform from innocent road furniture to slippery traps when the rain falls. If you can't avoid them be sure not to brake or turn on them.

...SCRUB WATER FROM RIMS

'Alternately feather your front and rear brakes when you see a corner approaching,' says Kleanthous. 'This clears water from the rim, leaving them drier and more efficient for the upcoming turn.'

...FEEL SUPERIOR

According to the Rules of the Velominati (see velominati. com): 'If you are out riding in bad weather, it means you are a badass. Period.' Wet socks are a small price to pay for the glow that comes from being tougher than the rest. 🛷



Prangs needn't halt your ride, provided you know how to get a wheel into shape

aving checked all your major limbs are still functioning normally, the immediate question following any unscheduled trip into the verge is usually, 'How's the bike?' Sadly, even fairly small spills can leave you with wheels too buckled to continue on your way to the next bike shop.

If you end up with a wheel that refuses to spin without grounding itself on either the brake or frame, follow our simple steps to quickly whip it into shape.



DOES THE WHEEL STILL SPIN?

You might be able to roll all the way home without touching the wheel. Release the brake and spin the wheel. If the wheel clears the brake pads and isn't contacting the frame or fork, it may be easier to wait to repair it. Just be aware that the brakes will work differently and ride very carefully



REACH FOR THE SPOKE KEY

When tightened, the spokes on the left side of the wheel pull the rim to the left, while those on the right pull to the right. Once you've identified the correct spoke to be tightened, attach the spoke key and give it a quarter-turn twist counter-clockwise.



CHECK THE SPOKES

Working around the wheel, grab pairs of spokes in turn and squeeze – this will reveal any loose ones. If you haven't had a collision, it's possible that one spoke has simply slackened off and tightening it may be enough to quickly straighten the wheel so you can ride home for a more thorough check.



TIGHTEN/LOOSEN

 ${\it Make small adjust ments and intermittently spin the wheel}$ to see the effect they're having. You may have to loosen the spokes adjacent to the one you're tightening by giving them a clockwise turn. Be careful, as it's easy to throw the balance of the wheel out.



GAUGETHE PULL

Spin the wheel to identify the area that's pulling to one side. Rim brake callipers can make a handy gauge. Otherwise, carefully position your thumb against the fork or seatstay. Then locate the one or two spokes opposite the centre of the buckle

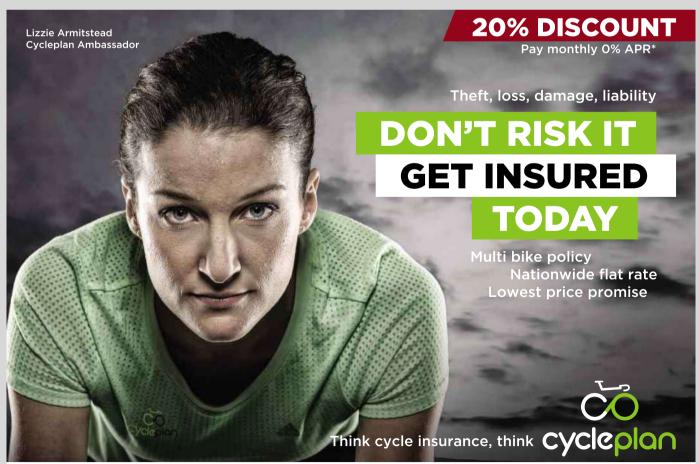


IF ALL ELSE FAILS...

Wheels are surprisingly complex creatures. Even if they seem to be spinning happily, it's important that the spokes are evenly tensioned. If you're unsure about the state of yours following an accident, it's worth having a mechanic check them in a proper jig. 🧀







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Fuelled by vitamins

Vitamins are essential for maximising performance. Here are the main ones for better cycling...

ey to maintaining a physiology Froome would be proud of requires a cornucopia of factors, like keeping stress levels low (yoga, anyone?), sufficient sleep (8 hours remains the general norm), and enough carbohydrates and good fats to strengthen your immune system. You should also keep your vitamin levels topped up...

VITAMIN B1 (THIAMIN)

B1 could be the cyclist's most vital vitamin as it plays a pivotal role in converting glucose into energy (as do vitamins B6 and B12), which comes in handy when you're riding above 75% of your maximum heart rate. B1 also strengthens the nervous system for more efficient pedalling. Aim for the recommended daily amount (RDA) of 1.4mcg (micrograms) of B1 to keep healthy.

The right foods: The RDA of vitamin B1 can be found in a cup of unsalted peanuts or three cups of lentils. Cooked asparagus is also a good source. Do I need to pop supplements?: Vitamin B1 is prone to heat destruction through cooking, so a supplement is useful.



VITAMINE

If exercise-induced free radicals (metabolites that can damage cells) were the detritus that clings to your bike after a Sunday ride, the antioxidant vitamin E is the jetwash that fires it back to whence it came. It's key to strengthening the immune system and eyes, so there's no excuse for failing to notice that red traffic light. Like vitamin C, though, there's evidence that significant amounts can hamper cellular adaptations in the working muscles.

The right foods: RDA is 4mcg, which is easily ticked off with around 150g of almonds or a healthy serving of spinach. Do I need to pop supplements? Vitamin E is stored in the fat, and not lost in urine, so a supplement is not usually necessary.



There's evidence that good levels of vitamin D (around 95-124mmol/I) reduce

inflammation, shortening the time you'll feel stiff and sore post-ride. Vitamin D is found in various foods (see below) - but only about 10% of the amount you need. Uniquely, the rest is made by the body in reaction to sunlight.

'That's why many believe reductions in vitamin D levels explain the increase in winter coughs, colds and even influenza.' says Dr Will Mangar, head of blood-profiling outfit Indurance. Ideally, expose yourself to sunlight as much as you can between 11am and 3pm during the winter.

The right foods: Egg yolks, fatty fish such as wild salmon and trout, and fortified milk and cereals.

Do I need to pop supplements? With sunlight at a premium in winter, and few foods that contain vitamin D, a supplement could be beneficial.

'B1 could be the cyclist's most vital vitamin as it helps convert glucose to energy



Vitamin C has gained celebrity status for fending off colds but research is equivocal on whether dosing up banishes the sneezes any faster than the RDA of around 90mcg. In fact, where it's of more use is keeping capillary walls and blood vessels firm for better bloodflow-this is useful when riding at high intensity.

'Vitamin C can also improve iron absorption, which has clear cycling benefits as iron helps oxygen bind to blood that's then delivered to

working muscles,' says nutritionist Lucy-Ann Prideaux.

There's an argument that says you shouldn't take vitamin C straight after you finish a heavy training session as research shows it could blunt the adaptation process, but this is uncertain.

The right foods: Just half a red pepper or one big orange will cover your daily allowance. Do I need to pop supplements?

No-a decent daily diet should be sufficient.

What's in your bottle?

Pick your drink to match your ride

Elite riders store a maximum 500g of glycogen in their bodies. Recreational riders come in at around 300-400g. That's still 1,200-1,600 calories, which should be plenty to see you through a 60-90-minute ride on water only. However, this only works if your energy levels are topped up beforehand with porridge, pasta and the like.

ENERGY DRINK

Two hours is the point at which carbohydrate energy drinks come into their own as your body starts running out of glycogen. For a long ride you want 0.5-1g of carbs per kilo of bodyweight per hour. For a 70kg rider, that's 35-70g of carbs. A 500ml bottle of energy drink usually contains around 40g of carbs, so between one and two bottles an hour is optimum.

ELECTROYLTE TABLETS

These salty tabs have become popular, but they may not be needed. One study examined two groups exercising for two hours who lost an average of 2.3 litres in sweat. This revealed no advantage from rehydrating with electrolyte drinks compared to water alone. However, for long rides of three or four hours, electrolyte drinks are good for sodium replenishment.

ENERGY & PROTEIN DRINK

Once you've dismounted after a long ride, your recovery requires protein to repair damaged muscles and carbs to refill muscle and liver cells with glycogen. Studies have shown a recovery drink with four parts carbohydrate to one part protein accelerates the entry of both carbs and protein into the recovering cells.





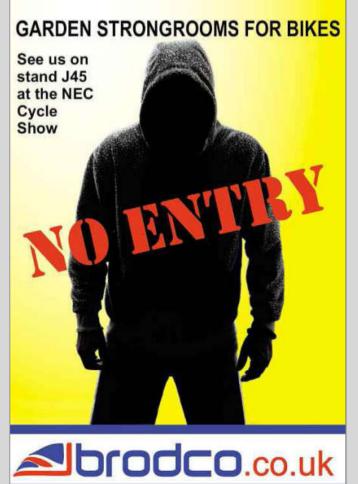


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PEAK PRACTICE

Just a stone's throw from Sheffield's suburbs lies a climber's playground

WHERE: PEAK DISTRICT TOTAL DISTANCE: 90.1KM TOTAL ELEVATION: 1,641M

Il the best rides include a café, but for this punishing loop of the Peak District we've elected to head for fuel before turning a pedal. Half an hour in Sheffield's Seven Hills bakery fills our group with enough pastry and coffee to see us through till lunch, but by the time we're 3km into the ride, an early feed looks like folly.

Snaking through suburban Sheffield, we plunge down a tree-lined incline and are hit by one of the city's brutal climbs. Highcliffe Road has us on our knees before we've begun, and all three of us are down to our smallest gear, out of the saddle and hunched over the bars like we've been on a mountain all day. A pain au chocolat is threatening a reappearance, just 10 minutes after I eagerly devoured it.

Settling into an easy pace along the rise of Ringinglow Road, it's only a few kilometres before a sign welcomes us to the Peak District National Park. Farmland gives way to heath, carpets of heather swathe rugged slopes and sheep wander the verges. We won't be the first cyclists they've seen today, but we knock the speed off, reducing chances of ovine collision.

The road races downhill, blurring ramblers and parked cars, before turning sharply left around a cliff face and sending us upwards once more. Stopping to attend to a loose













spoke gives us an opportunity to admire a wilderness that exists only 10km from the bustle and industry of the city.

We fly past walkers, hands on drops for the rapid descent to Hathersage – this is the easy bit but we know what climbs remain. We allow ourselves a speedy descent to the village, at which point we turn sharp right and plough on to Hope, where we vow to drop in on a friendly bike shop to have that spoke seen to. Matt at 18 Bikes sees us right, and, tempting though it would be to spend an hour browsing bikes and kit, we've bigger fish to fry.

We leave Hope and, just 3km later, abandon it altogether as we motor through the village

of Castleton and for the first time spy the imposing cleft of Winnats Pass before us.

With the peak of Mam Tor to our north, all of us are in our smallest gear as we cross a cattle-grid and prepare for the worst. Within 50 metres, we're out of the saddle, and further up the 1-in-5 I'm hurting, grinding a 36x28 gear that will barely turn. Laboured breath turns to gasps; sightseers aim cameras at the struggling riders. Firstly, I imagine the flashes are from the cameras but soon realise I've spots of light in my vision, the road tunnels, and landscape in the periphery disappears and narrows to a spotlight of tarmac in front of me. And they wonder why Yorkshire breeds champions.

WE LEAVE HOPE AND, JUST 3KM LATER, ABANDON IT ALTOGETHER

FEELTHE BURN

Our hilly route offers plenty of opportunities to test the legs and lungs

HIGHCLIFFE ROAD

Although the nearby national park offers ample opportunity for ascending, the suburbs of Sheffield are packed with punchy climbs known only to locals. The sinuous ascent of Highcliffe Road to the west of the city tops out at a gradient of 17.5% and had us in the little ring just 2.5km into our ride. Far from ideal, five minutes after a visit to a bakery.

WINNATS PASS

Make no mistake, this is going to hurt. The gradual drag up to the start of Winnats proper from nearby Castleton is deceptive, and just when this has taken the zip out of your legs, you cross a cattle-grid and are faced with a snaking road that averages around 20% for the duration. Smash this in anything bigger than your smallest gear and we'll buy you a drink.

SNAKE PASS

Words: Marc Abbott Photography: Richard Baybu

Although a fairly busy route eastward from Glossop to Sheffield, Snake Pass is ever-popular with riders. It's nowhere near as harsh as Winnats (rarely getting above 10%), but is three times as long. Stick it in the little ring and grind a rhythm to the top. Your reward is the mother of all descents to the Ladybower Reservoir.



Relief as a T-junction hoves into view is overwhelming, and we re-group, tapping out a snail's pace before settling to a tempo that propels us parallel to the steep contours of the valley. The pain in our legs is forgotten as practice sprints see us leapfrog before the treat of our descent into Chapel-en-le-Frith. Fifteen kilometres of undulating terrain are covered in the direction of Glossop, where a hastily grabbed petrol-station lunch of sugar and pastry steels us for our climbing challenges.

The road from Glossop has been climbing for 1.5km before we hit Snake Pass, and the next 6.5km present us with a broad, 'snaking' route towards the darkening heavens. With

Winnats in our legs and 50km covered, Snake Pass is all about sitting down, finding a rhythm and pedalling skyward. The traffic is the heaviest we've encountered all day, but the majority of motorists pass at a respectful distance. Corners on the lower slopes are blind and tight, but once the road opens and visibility increases, we shift toward our whatgoes-up-must-come-down reward. Of the 30km that remain, only 7km are uphill.

Opportunities to average 50kmh for 3km are rare in the UK, but as the world drops, pedalling is forgotten. Dry-stone walls pen us in as we fall from the exposed heathland and find ourselves once again surrounded by hills, following the route of the River Ashop to its meeting with the Ladybower Reservoir.

Cruising along the shore for 4km is welcome respite from the descending and climbing, and gives us a few minutes to gather our thoughts. Once again, we're 10km from the outskirts of Sheffield, and - if it wasn't for the traffic - we might be in the middle of nowhere. Within 8km, the greenery and scenery of the Peaks is gradually replaced by a suburban, then commercial cityscape. It's rush hour.

Mind and legs blown by the beauty of the national park, we retrace our tracks past the bakery, with one thought in our minds: is it too late to grab another orange-and-date scone?



PASSO DELLO STELVIO

This Italian giant is feared even by pros, but the rewards are spectacular

he Passo dello Stelvio is rich in cycling history and one of the most feared climbs for professionals and amateurs alike. It's a regular feature of the Giro d'Italia three-week Grand Tour, yet its inclusion depends on whether it is open or not. During May, the pass is often covered in snow and it's impassable.

A punishing climb (averaging 7.4%), many a soul has been laid bare on the slopes of the Stelvio. In the 1953 Giro, the legendary Fausto Coppi said he thought he was 'going to die' while climbing to the summit on a road banked by walls of snow twice his height. It was a telling statement from the man dubbed Campionissimo (champion of champions). Such is Coppi's relationship with this mountain that when you reach the summit, you're greeted by a sign saying 'Passo del Stelvio Cima Coppi'.

At 24.3km long, this is a serious ascent that can take the fittest amateurs around 90 minutes to climb (we've heard tales of it taking up to three hours). From the east and the town of Prato allo Stelvio, the foothills of the pass are surprisingly steep and it's not long before the gradient hits double figures. After a relatively straight first 5km, the road then spikes up and down through thick forest.

IT'S A BRUTAL, **LUNG-CRUSHING CLIMBTOTHETOP**





A little over halfway, the road emerges from the tree line and the landscape takes on a lunar appearance. It's here, around hairpin 25, where the road starts to hit high altitude and where the slopes start to dish out pain.

CLIMBS AND PUNISHMENT

With the summit at 2,758m, the next 22 hairpins push higher into thin air. With the twists and turns of tight hairpins, it's a brutal, lung-crushing stretch. It's hard to comprehend that this is where Coppi performed one of cycling history's great rides, launching a winning attack on 1953 Giro race leader Hugo Koblet, who buckled under the pressure.

On paper, some may say that the Stelvio's stats don't look too bad - it doesn't have a jaw-dropping profile peppered with doublefigure gradients - yet as a package, it's the ultimate all-rounder, with a habit of haunting professional riders. Motorolo pro Brian Smith recalled being 'petrified' on the descent of the mountain, and in the 2005 Giro, Tinkoff-Saxo's Ivan Basso (riding for Team CSC) lost a whopping 42 minutes and the overall race lead on the ascent after struggling with stomach trouble and battling to the top.

While the ascent from Prato is the most popular route, the approach from Bormio has also been used in the Giro. At 21.9km long, the





DO IT YOURSELF

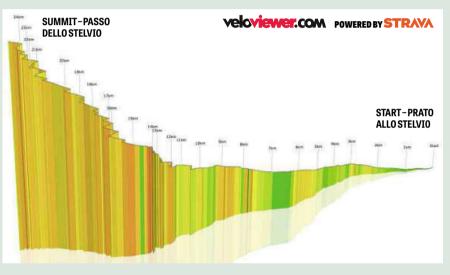
The most popular route to the summit of the Stelvio is from the Italian town of Prato allo Stelvio on the eastern side of the summit near the Swiss border. The nearest airport is Verona in Italy, which is a three-hour drive away. Innsbruck airport in Austria is also around a three-hour drive. To find the climb, head southwest out of Prato allo Stelvio along the SS38 and then go up, and up, and up. You can also do the climb from the west, starting at Bormio, which at 21.9km is slightly shorter, or from the north, starting in Santa Maria Val Müstair in Switzerland.



THE STATS

From: Prato allo Stelvio Summit height: 2,758m Elevation: 1,808m Length: 24.3km Average gradient: 7.4% Max gradient: 9.2%







RACE NUMBERS

The first time the pass featured in the Giro d'Italia

Number of hairpins (27 more than Alpe d'Huez)

Number of routes to the summit

Minutes lost by Ivan Basso on the ascent of the Stelvio during the 2005 Giro d'Italia (Basso was suffering with stomach trouble)

Number of Tibetan lodges on the summit of the Stelvio



western approach is regarded as slightly easier (average gradient 7.12%), yet the maximum gradient peaks at 14%, which makes for a fast and technical descent from the Prato side. These western slopes were the scene of drama during stage 16 of the 2014 Giro, when Nairo Quintana attacked the pack on the descent (about halfway through the 139km stage). He gained 4 minutes 11 seconds on the previous day's leader, Rigoberto Urán, and went on to take the stage and victory.

The Stelvio is king of the Italian climbs, passing through a stunning landscape, and is one to conquer for anyone wanting to follow in the footsteps of cycling's legends.

Dartmoor Classic

BikesEtc speaks to organiser Andrew Perkins of Mid-Devon Cycling Club for the low-down on this tough day out

Where: Newton Abbot Date: 26 June 2016 Distance: 107/68/35 miles

Price: £37

Enter: dartmoorclassic.co.uk







Andrew Perkins: There are three courses available, all starting and finishing at Newton Abbot Racecourse, with a maximum rider capacity of 4,000. You aren't allotted a specific wave like in other events, so you can easily set off with friends.

There are lots of sportives in the UK. What makes this one so special?

AP: We pride ourselves on being the most heavily marshalled event. We have a 120 over the course, and this is before you count police outriders, the Shimano mechanic cars and other volunteers. It means that it's hard to go off course, and if you have any issues, help is very close by.

What about partners and kids?

AP: There's lots to do. There is a children's area with a crazy-bike circus and bouncy castle, as well focused. There is also a grandstand for families so they can cheer their loved ones as they finish, with a bar and live bands playing. In 2015, although we were limited to 4,000 rider places, we still had over 8,000 people come to the village.

How tough are the courses, and what sort of riders do they suit?

AP: The Grande route (107 miles/172km) is a hard day out for many. It has 3,072m of climbing and some steep gradients. The Medio (68 miles/109km) is still challenging, with 1,883m of vertical ascent and should not be underestimated. Across both of these courses, we get a broad range of abilities from racers seeking to challenge themselves, all the way through to riders just trying to complete the course. The Debutante course (35 miles/56km) is increasingly popular, in particular with people who are just starting out. One thing riders should

remember is that the course can be made harder by the weather. Dartmoor has its own microclimate and while we've had good weather for the last two years, we have had pretty wet days in the past too.



AP: There is one, huge feed station, but this services the Grande twice as the route goes in a large figure of eight. The size means that we have pretty much every cake you can think of, as well as Torq gels, powders, drinks and bars. We have taken on board feedback from previous years and have more savoury snacks like crisps for those who want a break from the sweet stuff.

You mentioned the Shimano cars - what other mechanical support is there?

AP: Madison-Genesis kindly provides the Shimano cars, but if one of those isn't around, every one of our marshals is provided with spare inner tubes, tyre levers and a small pump - don't worry, we also give them a packed lunch! Given the number of marshals, if you have a mechanical problem, help is at hand. There are some bike shops on the route for more serious issues but we hope that these won't really be needed given the level of support.

What's in the goody bag?

AP: We are still figuring out the specifics for 2016, but we make a conscious effort that the retail value of the goody bag should be more than the cost of entry. In 2015, a Dartmoor Classic Buff was very popular. Together with energy gels and bars, we included inner tubes and an Ass Savers mudguard, among other items.

Any problems with parking?

AP: Because we are based on a racecourse, we are geared up for dealing with thousands of cars. Also, some of the local sports clubs open their car parks, so we have plenty of room. The parking, as with the marshalling and the wider event, brings the whole community together. This is really important as any money made from the event is rolled back into the







CIRCLE OF CORNWAI

To try out this favourite loop of the Cornish club, just keep heading southwest...



enzance Wheelers is the UK's most southwesterly cycling club and is steeped in cycling history. For instance, in the 30s, Wheeler George Fleming broke the

years but were resurrected during the 50s. The club still has a strong racing pedigree and continues to promote local racing, timetrials and also organises its own sportive.

DOWNLOAD THE ROUTE:

cyclist.co.uk/13penzance

Tom Southam, who rode for Rapha Condor Sharp (now JLT-Condor), remains a member of the club and Steve Lampier (Team Raleigh) is another member who progressed from club runs to the professional circuit.

The weekly club social is at the Star Inn in Crowlas, home of the Penzance Brewing Company. Down a pint of its 8% L8ER beer and the chances of you riding home in a straight line are pretty slim.

hour for a 25-mile time-trial.

The Wheelers waned during the war

Penzance Wheelers' club run

This ride wiggles around the coast, taking in Mousehole, Sennen and Porthleven, with amazing sea views and the occasional nasty climb



There are three courses to choose from on the

Dartmoor Classic and room for 4,000 riders

community, whether that be the Mid-Devon Cycle Club that organises the event, other sports clubs, the air ambulance, hospices or other charities.

Do you have any famous faces turn up?

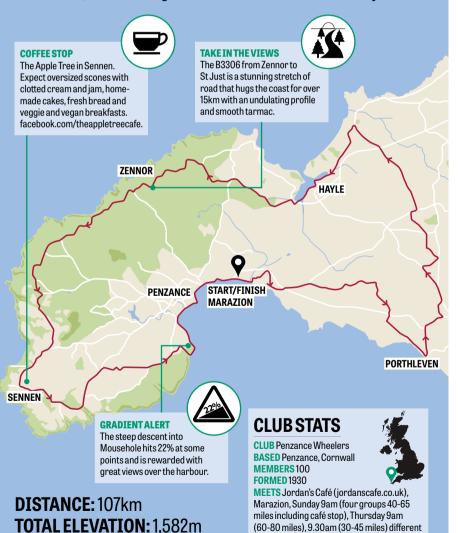
AP: It seems to be very popular with rugby players. We've had former pros Martin Johnson and Will Carling turn up and current Exeter Chiefs players riding. We get a smattering of local news presenters - though their names escape me. Because of the association with MDCC, we've had some of our more successful members take part - Jeremy Hunt [former British national champion], Jonathan Tiernan-Locke [ex-Team Sky rider], Yanto Barker and Tom Baylis [both ONE Pro Cycling team].

What about local accommodation?

AP: The area is geared up for tourists, so there is a huge number of different places for people to stay, with options for all budgets. We are exploring the idea of hosting a campsite near the start/finish.

When do entries open?

AP: Entries will open on either the last Monday of October or first Monday of November. You'll need to be guick as we sold out within 18 hours in 2015. If you miss out, there is a reserve list and a large number of reservists still get to ride.



routes each week.

WEBSITE: pzwheelers.co.uk

STRAVA: strava.com/clubs/4836 🛷



BEST OF BREED

Snowdonia's 'Dog' features breathtaking scenery and breath-taking climbs

WHERE: **SNOWDONIA, WALES**TOTAL DISTANCE: **138KM**TOTAL ELEVATION: **2,329M**

e're doing the dog,' says Richard, my guide from Ride Guide Wales (rideguidewales.co.uk). It's true – his route map draws a nearperfect picture of a dog. First, we head to the banks of Llyn Peris as the valley ahead reveals an enticing climb – the road snaking through Llanberis Pass to an altitude of 350m. As we ascend in the shadow of Snowdon to our right, the incline sticks to a consistent 3% to 5%, and we merrily spin near the 20kmh mark.

After 20 minutes of climbing, the road spikes up to more than 10% just before the summit, then gives way to a descent that takes our breath away. We're rewarded with a view of Snowdonia's plunging landscape, with the scenic Llyn Gwynant lake glinting between two hillsides to our left. While the road continues to gently undulate, the overall gradient levels out past sprawling flat fields with mountains in the distance and the road stretching out indefinitely ahead.

Next up is Betws-y-Coed, a pretty little village filled with pottering tourists. We wind our way up into woody, hilly terrain and approach the Nebo Road climb, which takes us from sea level straight up to 314m. Hedgerows and trees shelter the climb, but the forest breaks for long enough to peek at the valley that extends to our right. Some winding, technical descents separate us from the biggest road of the day, the A5. Turning south toward Penmachno, we make our way to the second sting in today's route: a 300m climb on the B4407.

A cattle-grid marks the beginning of the ascent, which has taken us into a narrow, single-lane track that winds through dense



INTHE SHADOW OF SNOWDON, WE MERRILY SPIN THE 20KMH MARK

forest. With the views over the valley to our right, I hardly notice that the road has notched up to 20%. Making our way down, we sweep through the historic mining town of Blaenau Ffestiniog, which has a rugged and peaceful charm. From here, we're only a stone's throw from the highlight of the ride.

The climb up to Llyn Stwlan reservoir could well be the UK's best-kept secret. It's a 3km gravelly road that averages 10% with spikes of 20% en route to the impressive dam that forms the eastern edge of the reservoir. Set amid craggy rocks, the climb gives way to an open view of the valley below, with the arches of the dam ahead luring us forward. It's so steep, I can see most of Snowdonia.

After the final bends of the ascent, we reach the reservoir. The road to the dam hits a dead end at the summit, so we double back and shoot down the hill we just climbed.

The following 40km turn out to be the most picturesque of the day – with the road gently rising and falling, providing enough of a challenge to keep the ride intriguing. First comes Llyn Mair, where a glass-smooth road surface hugs the banks of the tranquil lake with a rich forest opposite. The lake was created in the 1890s by William Edward Oakeley, the founder of the Oakeley quarry, which we passed earlier in Blaenau Ffestiniog. We then skirt two other majestic, expansive lakes – Afon Glaslyn and Llyn Gwynant.

We greet the big ascent to Pen-y-Pass with tired, aching legs. The road winds around from the south through a grinding climb that joins up with our first descent of the day, but the next climb takes us back to 350m altitude. Although it's a consistent 2% to 4%, it's hard to determine the gradient. Reaching Pen-y-Pass before rolling back to Llanberis, I say to Richard, 'Great way to end the day, eh?' He smiles and nods.







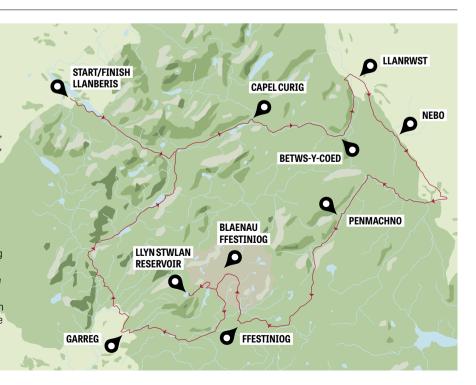


HOUND STRETCHERFollow the Snowdonia trail

■ GPS DOWNLOAD cyclist.co.uk/13wales

At Llanberis, take the A4086 to Pen-y-Pass, then turn left-still the A4086. At Capel Curig turn right onto the A5 to Betws-y-Coed, where you go left onto the B5106, $skirting\,the\,River\,Conwy.\,Turn\,right\,towards\,Llanrwst,$ right after the bridge, then a left-right shimmy onto the B5427, then right on the B5113 towards Nebo. At the A5 junction, turn right. After 7km turn left onto the B4406 towards Penmachno. Go 15km (B4407; B4391) until the A470 junction where you turn right to Ffestiniog. Follow signs to Blaenau Ffestiniog and there, turn left onto the A496 until a right turn to Tanygrisiau. Follow signs to the power station, passing the Tanygrisiau reservoir. Just before a small bridge, turn left up a hill to the Stwlan reservoir. Retrace to the A496; turn right, heading to the A487 junction where you turn right towards Porthmadog. Shortly after, turn right on the B4410 to Rhyd. At Garreg, turn right on the A4085, then right on the A498 towards Capel Curig

until signs for Llanberis take you back to the start.



November 2015 **BikesEtc** 129



Take the stage

 $Presenting\,TV\,coverage\,of\,the\,Tour\,of\,Britain\,is\,a\,rush\,of$ travel, gossip and cycling celebs, as Matt Barbet discovers

'A large

cheese is

awarded to

Tyler Farrar for being combative'

I'm sitting on a train, heading from London to Colwyn Bay in North Wales, looking at pictures of an incredible selection of cars on a mobile phone: a couple of tuned-up Jaguars, a green McLaren, a Mercedes, a new Land Rover. The mobile is not mine, and the cars never will be. They all belong to the man who, by chance, is sat down next to me: Mark Cavendish.

And so, my journey round the country

following the brilliant circus that is the Tour of Britain begins by shooting the breeze for three hours with one of the greatest Britons to ever pedal a push-bike. We talk openly about lots of things that I won't share here, but I also get plenty of vital help with my homework on the other riders he'll be racing with, ahead of the twohour team presentation I'm on my way to host.

With names we all know like Sir Bradley Wiggins, André Greipel, Edvald Boasson Hagen, Alex Dowsett and Peter Kennaugh joining Cav on stage, as well as plenty of the domestic stars of bike racing I know and admire, I quickly realise I haven't actually signed up to work - it is instead a completely different way of life for the next eight days. Rightly, people refer to being 'in the bubble' as the whole caravan works its way around the country. For a genuine fan like me, who just happens to be lucky enough to work as a journalist and presenter on television, it is intoxicating from the off.

> With a huge team involved in putting together the live coverage for the whole world (over 100 countries show the race) and also highlights for ITV, we quickly fall into a daily rhythm. In my team Skoda, I have ex-pro and Olympian Rob Hayles as well as our producer Paddy. We meet for breakfast, then head to the start of that day's stage, where we'll hook

up with the rest of the crew and try to grab interviews with the riders round the team buses. I also meet up with former national champion Kristian House to record his thoughts for the highlights show.

Once done, Kristian goes off to race on the bike and we're racing in the car - legally, of course - to get to the finish line. Depending on the length of the stage, and with a lot of roads closed, time is of the essence. With all the broadcast trucks already set up at the finish, Rob and I go on-air at 1pm to introduce the live coverage, before the legendary voice of Hugh Porter takes over commentary to the finish line, along with Brian Smith as a pundit.

Once I've finished chewing over the day's racing with Rob, we're off-air. I pick up on camera with Kristian 'The Dude' to get his insights from inside the peloton - Wiggo and Cav constantly taking the mickey out of each other, riders asking others what their bikes are like as they could be racing on them in a new team next season, the detailed story of crashes that our cameras can't pick up, the hierarchy in a breakaway where experience can count for more than brute strength.

Once recorded, I write and record a quick summary of the day's race for the following day's show, and then we're on the road again, maybe for two or three hours, before we get to a hotel near the following day's start. Then it happens all over again.

Minor details form enduring memories. There's the Lancashire town of Colne, awash with as much yellow as you'd ever see at any Tour de France finish; the wind turbine in the Northumberland town of Blyth that turns out to be the first one Colombian sprinter Fernando Gaviria has seen; and the puzzled look on Tyler Farrar's face as a large cheese - a stilton - is awarded to him for being the most combative rider on stage three.

Future stars begin to emerge. Welshman Owain Doull ends up on the podium for Team Wiggins, delighted to get a regular lead-out from his decorated boss. Team GB riders Tao Geoghegan Hart and Alex Peters mix it with the best of them. Gaviria out-sprints Greipel the Gorilla to properly mark his arrival on European roads.

The only potential downside of the whole shebang was not being able to ride my own bike for a week. I say potential because on the magnificent final circuit in London, I actually managed to whizz round with three motorbike outriders.

With famous addresses like Whitehall, The Strand and Piccadilly Circus closed to traffic but already lined with thousands of people, I just had to go full-gas. As I pushed myself to go faster, I couldn't help but grin. Yes, I was exhausted from the long week on the road, but it wasn't really work. It was just one of the best fun and most satisfying things I've experienced. 🛷



In between stints presenting the news on Channel 5, Matt Barbet indulges in his passion for cycling by heading up ITV4's The Cycle Show



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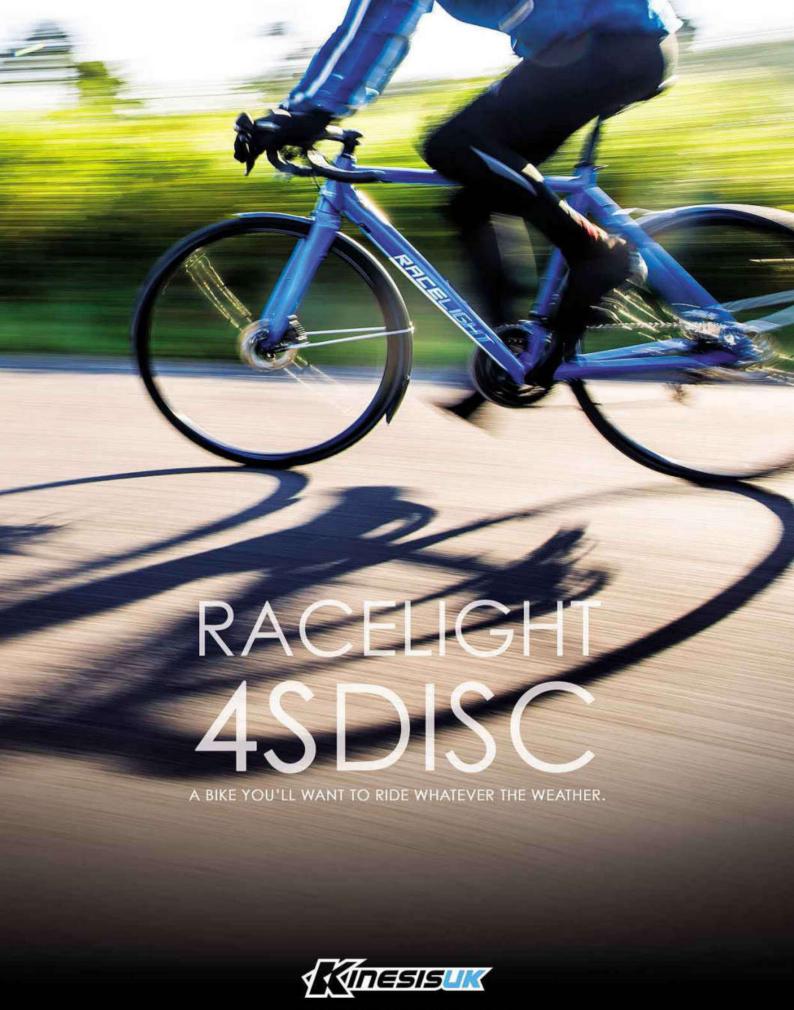


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CRANDSPORT RACE OF

ANY CERO WHEELS

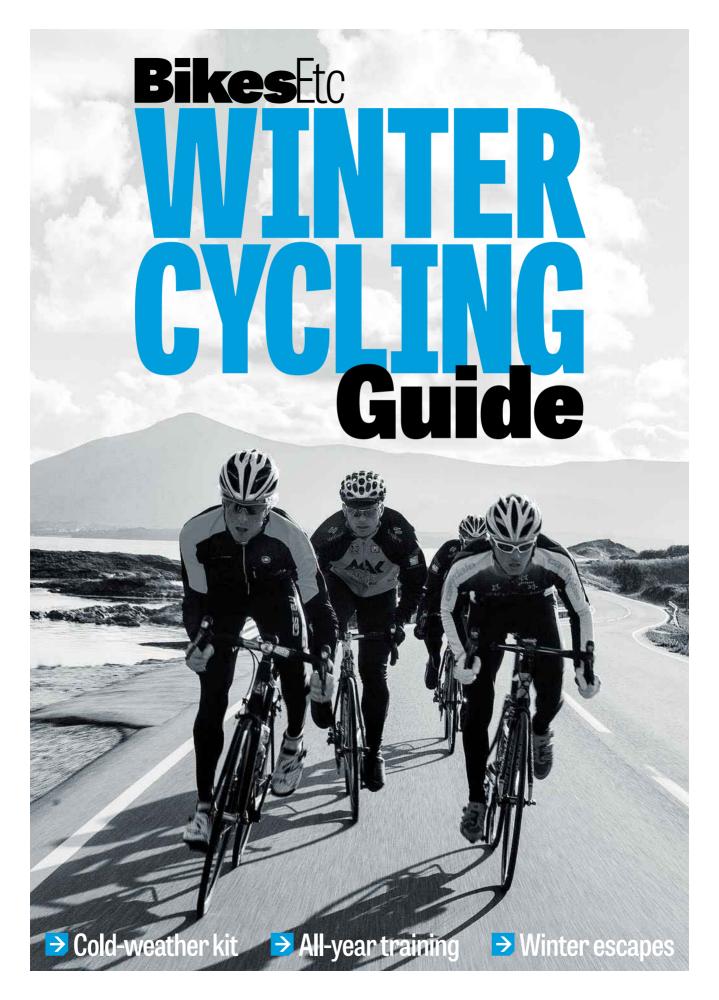




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7 BY THE NUMBERS

The British winter is a difficult concept to quantify – but we've done our best. These are the stats that tell the story of the long, dark months to come.

8 WINTER-PROOF YOUR BIKE

Turn your best summer bike into a year-round stalwart with all the kit you need to make it fit for whatever the weather can throw at it.

12 WINTER-PROOF YOUR BODY

There's no such thing as bad weather, only the wrong clothing. Use our guide to dressing right to stay warm and dry(ish) in all conditions.

14 MAINTENANCE

Grit, salt and water spray from winter roads can destroy expensive bike components in no time – follow our handy tips to keep your pride and joy in perfect shape all year round.

18 TRAINING PLAN-OUTDOORS

Winter miles make summer smiles, but you still need to add structure to your rides to optimise the benefits. Luckily, we've got the perfect winter training plan for you right here.

22 TRAINING PLAN-INDOORS

Really can't face going out in the cold and rain? This needn't mean an end to your close-season training regime. Set up your turbo and get pedalling.

26 THE CAVE OF PAIN

Everything you need to kit out your indoor training hub to make turbo sessions more enjoyable – or at least more comfortable.

30 WINTER ESCAPES

Seven European destinations where you're guaranteed warmth, sunshine, great views and great cycling, even in the depths of January.

BikesEtc

Keep on riding

When the days get shorter and the mercury drops it's tempting to store the bike away and wait for spring – but the onset of winter shouldn't mean an end to your cycling year.

These are the months that allow you to build on your summer fitness so that next year's riding will be better than ever. And then there's the kit... winter is the perfect excuse for a new cycling wardrobe. So don't stop now – things are just warming up.



Percentage loss of fluid that occurs via the lungs. So even if it's cold and raining and you're not sweating buckets, make sure you stick to your hydration plan. It's possible to get even more dehydrated in winter than it is in summer.

Winter riding by the numbers

From lighting to safe stopping distances, here are the stats that matter when the chill sets in

500

A sensible minimum of lumens for lighting the road ahead when riding on unlit rural roads. Check the lumen rating when you buy bike lights, and don't forget to take into account the design of the optics and the shape of the beam too – dazzling oncoming cars can be just as dangerous as not being seen by them.



The number of seconds you should put between you and the cyclist in front to enable you to come to a controlled stop when riding in the wet. This goes up to 20 seconds when it's icy.

50%

The amount of time you can reduce a training session by replicating it on a turbo trainer, instead of doing it on the road. This increased efficiency is due to the lack of variables that come with cycling outdoors, enjoying yourself not being one of them.

25c

Recommended size of tyre for riding on the road in winter. Although heavier, the greater contact patch will increase grip in the wet and as they're wider can be run at slightly lower pressures to allow more deflection, without running the risk of punctures. Bigger tyres are more comfortable, too – just what you need to get you through that freezing training ride.

48,535

The number of people who signed up to the Rapha Festive 500 in 2014. The challenge, to ride 500km in the cycling no-man's land that is 24th-31st December, looks set to be bigger than ever this year and is a good excuse for sneaking out of the house when the in-laws arrive.

362

The amount of rain in millimetres that fell on the UK over winter 2014/2015. The mean temperature was 3.9°C. The long-term forecast for this year is 0.3°C colder than that, with a chance of severe storms from November through to December.



Winter-proof your bike

When the roads get wet and gritty, you don't need a different bike, you just need to turn your summer steed into a winter warrior with these weather-defying additions

hile staying in the saddle through winter can be hard on the rider, spare a thought for the machine that you're riding on. Not only does the inclement weather add to the wear and tear on your trusty bike but other factors such as salt, grit and loosened debris forced into your path by rain can seriously take its toll on the frame and components, as well as cause roadside mechanicals. And don't get us started on punctures (here's a tip:

practise changing inner tubes, it's less personal when it's a process).

The perfect answer is to have a winter bike – something cheaper and more robust than your lightweight pride and joy that you save for the dry days of summer. But budgets and storage space don't always allow for multiple bikes, so overleaf we've suggested a few smart modifications that will help to protect you and your bike from the worst the weather can throw at you.

Salt, grit and loose debris can take its toll on your frame and components. A few smart modifications will protect your bike









Winterproof your bike

Our pick of the products that will see you safely through the winter months



SADDLE BAG TOPEAK AERO WEDGE IGLOW

Punctures are more likely in winter as the rain washes foreign bodies into the road, priming them to pierce your tyres. So a decent-sized saddle bag is needed to fit the relevant tools and inner tubes in so you're never caught short. (Q: How many inner tubes should you carry? A: One more than you think you'll need.) This Topeak pack has integrated LED strips to add to your visibility.



MUDGUARDS SKS RACEBLADE

Mudguards aren't cool, right? Tell that to the rider behind you when you're kicking up spray. And a line of muck up your jersey is not a good look. Avoid it by clipping on a pair of these SKS mudguards which will fit any road bike, even without eyelets.



TYRES VITTORIA OPEN PAVE CG

When the roads are slippy you want your tyres to be grippy. And they don't come much more grippy than the Pave CG – you'll recognise the green sidewall from its appearance on pro bikes in the Paris-Roubaix one-day classic, which is recommendation enough, really. They're not cheap and not the longest-lasting of tyres, but what price peace of mind on a greasy UK road when it's chucking down?

PRICE: £41.99

CONTACT: chickencycles.co.uk



WINTER-PROOF BIKE



BAR TAPE SPECIALIZED S-WORKS ROUBAIX

Winter riding can be tricky enough without adding thin, slippery bar tape into the mix, which is why it pays to replace it when the mercury starts falling. S-Works Roubaix bar tape has a non-slip surface that makes sure nothing comes between your hands and the bars, while the Elastomer gel backing reduces road buzz.

PRICE: £15
CONTACT: specialized.com



LIGHTSET

LEZYNE HECTO/STRIP DRIVE

The Hecto Drive front light will pump out 300 lumens from a very neat package, and will last between one and 18 hours depending on the setting, while the Strip Drive rear light's five LEDs will ensure that you get seen by any cars approaching from behind. Both can be charged by USB.

PRICE: £54.99 set CONTACT:

upgradebikes.co.uk



BRAKEKIT

JAGWIRE ROAD ELITE LINK

It's amazing how far water and crud can penetrate your bike during a wet, muddy ride. Even sealed-in components such as brake cables can suffer after a good soaking, affecting your ability to stop in a timely fashion. The cable liners in this brake kit from Jagwire will help keep cables clean while the compression-less construction boosts braking power.

PRICE: £55 CONTACT: wiggle.co.uk



FLASK

BIOLOGIC VACUUM FLASK

It's always a rush to get out in the mornings so why not drink your coffee on your bike as you would on foot? This offering from Biologic does exactly what it says on the, um, flask – it fits into a bottle cage, is operable with one hand and keeps beverages hot for a couple of hours. Best not to fill it with Cup-A-Soup, though.

PRICE: £15

CONTACT: paligap.cc





Winter-proof your body

Keeping warm and dry – both out and in – is the Holy Grail of cycling clothing. We've chosen the kit you need to make sure your zero-degree ride is as warm as an evening in front of the fire



HELMET LAZER SPORT Z1

This lid comes with an Aero Shell that can be clipped on to the outside to make it more aerodynamic, which has the added benefit in the colder months of blocking the vents to increase protection from the elements.

PRICE: £200 CONTACT: madison.co.uk



THERMAL CAP CASTELLI VIVA SKULLY

Like a lot of winter gear, a skull cap isn't going to win you any admiring glances. However, having an additional barrier between your head and the weather will make all the difference on a chilly day.

PRICE: £19 CONTACT: saddleback.co.uk



SUNGLASSES RUDY PROJECT FIREBOLT

These photochromic lenses were originally created for cyclocrossers and can handle rain, shine, mud, sweat and a few tears. The lenses adjust to the changing light and the vents at the corner prevent fogging.

PRICE: £98 CONTACT: yellow-limited.com



NECK WARMER SPORTFUL SECOND SKIN

Freezing wind can get into all sorts of crannies, which is why covering the space between jacket and hat is vital. This neck warmer can be fashioned as a neck warmer, a skull cap or even as a balaclava.

PRICE: £21 CONTACT: c3products.com



THERMAL JERSEY MADISON ROAD RACE

Designed with the Madison-Genesis road racing team, this jacket makes an effective mid-layer (over a merino base, under a light rain jacket). The snug fit and softshell ensure you're warm but able to move freely. PRICE: £75 CONTACT: madison.co.uk



RAIN JACKET GORE POWER ACTIVE

This waterproof shell hits the double whammy of letting body moisture out while stopping rain getting in. It incorporates Gore-Tex Active for more breathability, and the cut lets you layer underneath if it's chilly. PRICE: £180 CONTACT: goreapparel.co.uk

2 5 6 8

SHUT OUT THE COLD



GLOVES CHAPEAU WINTER

Chapeau has matched the material to how the elements affect each section of its glove: windproof and water-resistant outer, neoprene cuff and a leather palm, making them dry, toasty and grippy.

PRICE: £40 CONTACT: velobrands.co.uk



BIBTIGHTS MADISON SPORTIVE FJORD DWR

If you're heading out for a long ride in sub-zero temperatures, these all-in-ones will keep you warm. Made from thermal Roubaix Lycra, they're backed with micro fleece and a water-repellent-coated fabric.

PRICE: £75 CONTACT: madison.co.uk



OVERSHOES SEALSKINZ HALO

Overshoes protect your shoes and feet, keeping grit, dirt and water away from carbon soles and Boa fastenings. Not only will these keep your feet warm, the lights in the heel will increase your visibility too.

PRICE: £40 CONTACT: sealskinz.com



Rise and shine

Winter hammers bicycles! Keeping yours clean will improve performance and potentially save you money too

ashing your bike is a pain at the best of times but if we were to tell you the optimum time to clean your bike after a particularly wet and muddy ride is the moment you get off it, we can imagine your response. Unfortunately, that's exactly what you need to do, as cleaning it while it's wet is far easier than letting any dirt and mud dry on the frame and components – especially if you've been riding on gritted or salted roads.

So before running a shower, scoffing a bowl of pasta and settling in for an episode of *Columbo*, grab rags, sponge, lube, degreaser, an electric toothbrush (you read correctly) and a bucket of soapy water. And don't think for one minute that a spray wash at the local garage will suffice. This may force water into bearings – and your brakes and gears need to retain some grease. It's time to roll your sleeves up.

CASSETTE

The more adventurous of you may want to remove the cassette from your bike and dismantle it completely for a thorough clean and degrease. However, for those of us with less time on our hands, just taking the wheels off gives you enough access for a pretty comprehensive scrub up. With a brush and some hot, soapy water, clean all the dirt out from the sprockets then floss with an old rag to dry them and remove any remaining crud.

CHAIN

Start by coating the chain in degreaser. To prevent muck splashing everywhere, an enclosed chain cleaning unit is worth the investment. Once the degreaser has loosened the black sticky stuff, get busy with hot soapy water and a sponge to make it shine like new. When it's clean, dry the chain off with an old bit of rag, leave it to dry thoroughly, then apply a decent wet lube. A dirty or worn chain can ruin other, more expensive parts of the drivetrain, so don't scrimp on the lube.



Winter storage

If you've got a winter bike or simply can't face riding in inclement weather, here's how to store your bike over the cold months

- Take out the seatpost and hang the bike upside down. This will ensure that any water you've taken on board runs out.
- Clean and lube the chain and cables to prevent them rusting, especially if your storage area is outside or unheated.
- Keep the tyres inflated to avoid flattened rubber or cracks appearing when flat. When you get back to riding, check the pressure as they will have deflated over time.
- Clean your saddle and handlebar tape and ensure they're kept in a dry condition to prevent rotting.
- Spray your chainset and metal components with a light silicone spray to push out moisture and prevent moving parts seizing.
- Lock it up. Even if it's in a safe place, an extra bit of security could prevent endless phone calls with insurers come the spring.



hotography: Alamy



BRAKE PADS

Take a moment to inspect brake pads and pick out any bits that could harm the brake tracks on your wheels.

COMPONENTS

Although Chris Evans' *Top Gear* appointment may well position him as a cycling *bête noire*, keep in mind one of his earliest TV successes when it comes to cleaning components: don't forget your toothbrush. Specifically an electric one, as it really helps with those hard-to-reach parts and will ensure you can clean thoroughly without having to actually dismantle anything. Using a spray-on degreaser, scrub in all those hard-to-reach places before rinsing with clean water, being careful not to pour any into bearings.

FRAME AND WHEELS

A bucket of hot, soapy water and a good sponge or brush is all you really need, although specially formulated bike cleaning solutions will often do a better job of getting rid of grease while protecting the paintwork of your frame. Clean the tyres, rims, spokes and hubs first. If you have a workstand, take the wheels off and, starting from the saddle, clean downwards. Smaller brushes or a bit of old cloth are good for getting behind the fork, seatstays and chainstays. A preventative tip from the British Cycling squad is to use a silicone spray on the frame to create a slippery surface that stops mud sticking. Make sure you don't get any on the rims, though-you still want the brakes to work.

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In the bleak mid-winter

Want to start the new cycling season a bit fitter than you ended the last one? Here's how winter riding can increase your fitness rather than just maintain it

OUTDOOR TRAINING PLAN



onventional wisdom suggested that, come winter, cyclists should put away their race bikes, get out their winter training bikes, and spend the cold months clocking up long, slow miles. Known as 'base training', the idea was that hours of low intensity rides would provide a fitness platform that could be built upon with more high intensity work come the spring. It's a sound theory, spoiled only by the fact that hitting the road for long periods of time isn't realistic for most riders, especially in the UK winter.

Obviously, for pro riders time isn't an issue. Then again, their winters won't be spent running the gauntlet of rain, ice and poor visibility, with training camps in sunnier climes keeping them on the edge of their fitness capacity all year round.

For the rest of us, modern training methods have started to question if not the validity, then the quantity of steady-

For pros, winters aren't spent running the gauntlet of ice, rain and poor visibility-training camps are usually in sunnier climes

state riding one should be doing. Riding long and steady doesn't give your body sufficient stimulus to maintain the fitness you gained in summer.

There are three elements to endurance performance: capacity, threshold and efficiency. Intervals and short, hard rides are good for developing greater capacity and an ability to ride at a higher percentage of that capacity. Efficiency is developed by repeating a movement, thus increasing the power of the neural drive to the muscle. Long rides improve efficiency. Spending longer in the saddle also makes you better at burning fat stores for fuel rather than carb stores, and the aerobic miles strengthen your heart and blood vessels. So if you're hardy enough to get out in the cold, mix it up with interval sessions and tempo training, as well as long, steady rides. It's certainly the way the pros train-no matter where they are.



The workouts

ur winter training plan (below) was put together by former Olympic coach Dave Smith (ffflow.com) and is aimed at progressively building up endurance while enhancing higher-end power and threshold. The following key tells you what kind of workouts you need to do while the plan tells you when you should be doing them. Warm-ups for the interval session should be steady state for four minutes, starting effort 6/10 (ie moderately hard but at a level you can sustain comfortably), gradually increasing intensity until breathing is laboured. Cooling down from an interval session should be steady state for five minutes, effort 6/10, 90 rpm. Avoid eating in the two hours before a session (during long sessions, eat while on the bike as normal) and as always, before starting any exercise plan, consult your doctor. Happy training.

AP-AEROBIC POWER

- •Your maximum effort should be the highest intensity you can ride at for the allotted time.
- AP1: 3 sets of 5 x 20 sec max/40 sec recovery. 3 min between sets.
- •AP2: 3 sets of 5 x 20 sec max/30 sec recovery. 3 min between sets.
- •AP3: 3 sets of 5 x 40 sec max/20 sec recovery. 3 min between sets.

EF-EFFICIENCY

- •Pedal at 90-95rpm with a light resistance of about 6/10 effort (moderately hard but at a level you can sustain comfortably).
- •**EF/1**:1hour
- ·EFh/2: 2 hours, hilly

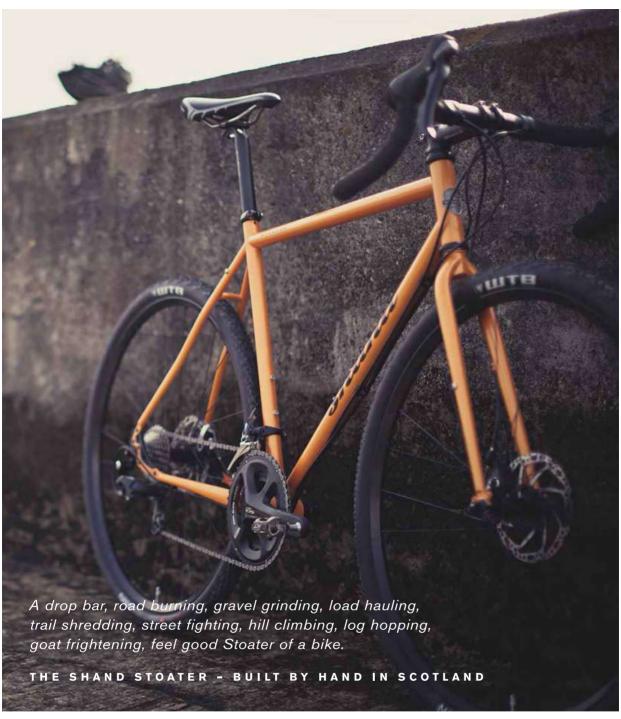
THR-THRESHOLD

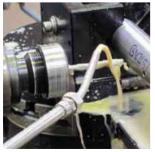
- •Intervals should be hard, about 8.5/10 effort (as hard as you can sustain for the duration of the workout)
- •THR1: 5 x 5 min, 1 min recovery
- •THR2: 8 x 3 min, 1 min recovery
- •THR3: 3 x 8 min, 3 min recovery



THE PLAN

	MON	TUES	WEDS	THURS	FRI	SAT	SUN
Week1	Rest	AP1	EF/1	AP1	Rest	EF/1-THR1	EF/2
Week 2	Rest	AP1	EF/1.5	AP1	Rest	EF/1-THR1	EF/2.5
Week 3	Rest	AP1	EF/2	AP2	Rest	EF/1-THR1	EF/3
Week 4	Rest	AP2	EFh/1	AP2	Rest	EF/1-THR2	EFh/2.5
Week 5	Rest	AP2	EFh/1.5	AP2	Rest	EF/1-THR2	EFh/3
Week 6	Rest	AP2	EFh/2	AP3	Rest	EF/1-THR2	EFh/3.5
Week7	Rest	AP3	THR3	AP3	Rest	EF/1-AP3	EF/3.5
Week 8	Rest	THR2	EFh/2	AP3	Rest	EF/1-THR3	EF/4













The road to nowhere

The lure of the open road somewhat loses its appeal when British wintertime's icy grip takes hold. So dust off the turbo and step into the warm...

e've all been there. With the best will in the world, we pull on our waterproofs and sometimes even get as far as the garage, but five minutes into what should be a winter training ride, inclement weather sends us back to the sofa nursing a Cup a Soup. But don't despair—you can still get a session in without leaving the house.

If you've got a dedicated space and noise isn't an issue, you could go for a static bike like the ones in the gym, or even a set of rollers, where you put your whole bike directly on to two revolving units. However, if space and funds are limited, what you need is a turbo trainer.

resistance units which have a metal plate spinning inside a magnetic field, but they're not the smoothest of rides. For that, you need to look at a fluid resistance model. More realistic in feel, the unit houses an impeller which revolves in an oil bath and is much quieter so will make sure you stay friends with the neighbours.

Once you've taken the plunge and your turbo and bike are set up in your own 'pain cave' (see page 26) how do you get the most out of it? If you're following a programme, have a big sportive or race coming up or simply want to lose that paunch, every missed session is a step back from your goal. Not only does

Whether you like staying warm or simply going hell for leather in your lounge, turbo training could turn you into a 'serious cyclist'

The concept is pretty simple: the rear wheel of your bike is suspended in an A-frame unit via the rear skewer - the turbo will come with its own skewer that works with its locking system. The tyre then rests against a roller, attached to a resistance unit. How much you pay for a turbo trainer depends largely on how this resistance is created. At the bottom end of the scale are air-resistance turbos where a fan generates wind resistance. But they're cheap for a reason: you can only adjust how tough the ride is by using the gears on your bike. And they're noisy. Really, really noisy. More expensive but with a controllable option are magnetic

training indoors allow you to maintain your fitness through the winter months, it's also an excellent way of doing very specific and targeted training sessions. Such efficiency means you can reduce the time you'd spend out on the road by up to 50% when replicating a training session indoors. And like a puppy, a turbo isn't just for Christmas. Once those long wintry nights are over, it still has plenty to offer. Whether you like poring over stats, keeping warm while you train or just going hell for leather in the comfort of your own lounge, turning on to turbo training could take your performance from 'weekender' to 'serious cyclist'.







The workouts

ur winter turbo training plan (below) was put together by the experts at Cadence Performance (cadence performance.com) and can be used instead or as well as the winter riding plan.

The progressive sessions tackle four central factors – capacity, threshold, efficiency and power. Put simply, how big is your 'engine', how much of that power can you access for sustained periods, how well can you coordinate the action of pedalling, and how hard can you go.

Max means max – the hardest effort you can sustain for the interval period. With the exception of the efficiency session, you should finish them in a 'finished' state! The threshold session should be ridden at an intensity above the effort that would allow you to carry on a conversation.

Warm-ups should be steady state for four minutes, starting effort 6/10, increasing intensity until breathing is laboured, then 5 x 5 seconds max sprint, 25 seconds recovery. Cool-downs are five minutes steady state, effort 6/10, 90+rpm.

EF-EFFICIENCY

EFF: 100-110rpm, light effort 30-45 min

CAP-CAPACITY

CAP1: 8 x 45 sec, 90 sec recovery CAP2: 3 sets of 5 x 30 sec max/30 sec recovery, 3 min between sets CAP3: 10 x 40 sec max, 20 sec recovery

POW-POWER

POW1: 15 x 10 max, 1'50" recovery **POW2:** 3 sets of 10 x 5 sec max, 25 sec recovery, 2 min between sets

POW3: 12 x 15 sec max, 45 sec recovery

THR-THRESHOLD

THR1: 5 x 5 min, 1 min recovery - effort 8/10, 'hard'

THR 2:3 x 8 min, 3 min recovery-

effort 8/10, 'hard'

THR 3: 2 x 12 min, 6 min recovery

effort 8/10, 'hard'



THE PLAN

	MON	TUES	WEDS	THURS	FRI	SAT	SUN
Week1	Rest	CAP1	EFF	POW1	Rest	THR1	OUTDOOR RIDE
Week 2	Rest	CAP1	EFF	POW1	Rest	THR1	OUTDOOR RIDE
Week 3	Rest	CAP2	EFF	POW2	Rest	THR 2	OUTDOOR RIDE
Week 4	Rest	CAP2	EFF	POW2	Rest	THR 2	OUTDOOR RIDE
Week 5	Rest	CAP3	EFF	POW3	Rest	THR3	OUTDOOR RIDE
Week 6	Rest	CAP3	EFF	POW3	Rest	THR3	OUTDOOR RIDE /







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The cave of pain

Turn any room into a turbo training torture chamber with the addition of these accessories

TURBOTRAINER

Your turbo trainer will be the centre of your pain cave. Options range from simple machines that merely provide resistance to full multi-media experiences that offer reams of data, virtual courses to ride and intelligent resistance that adjusts depending on the (virtual) gradient you are on. Obviously the price adjusts accordingly, with the cheapest turbos starting at below £100 and the most expensive topping £1,000. The majority of turbos require the rear wheel to sit on a roller, so it can be wise to invest in a turbo tyre, which will grip better and be more resistant to wear and heat build-up than normal tyres.

Knights of the pound table

Dave McQuillen, creator of Sufferfest videos, reveals why it's about more than just the turbo

'We make cycling training videos that have structured workouts, killer music and footage from the world's biggest races – including the Tour de France. We started the company to save the world from turbo trainer boredom. There is a community of tens of thousands of Sufferlandrians around the world that transcends the videos. We are a nation of people who chant the mantra: "I will beat my ass today to kick yours tomorrow." Bike torture chambers have taken on a life of their own: the room, lighting, audio/visual system, fans, towels, mats, how you'll stay hydrated and where you'll put the bucket! For inspiration, visit thesufferfest.com – we've got the world's largest collection of bike torture chamber photos!'



VIDEOS If you want something visual and re-runs of 8 Out Of 10 Cats don't float your boat, then there are videos and apps that can complement and enhance your training. The likes of Sufferfest (sufferfest.com) and Pain Cave (paincave.com) combine footage from pro races with training plans, or apps such as Zwift (zwift.com) can link you online to other masochists so you can race each other in a virtual world, just like playing a computer game. You can sweat up to 1.5 litres an hour when training hard indoors. BIKECOMPUTER Keep a couple of big water Hard data is the best way to track your bottles handy and consider performance and progression during adding electrolyte tabs. training. If you don't fancy splashing out on a power meter (expect to pay over £1,000), heart rate monitor, or speed/ distance/cadence sensor, a simple We've mentioned you're going to stopwatch will allow you to do interval sweat a bit, right? Having a towel sessions based on perceived effort. to hand means you can wipe the sweat off your forehead before it gets in your eyes, which you really don't want to happen. Unlike hitting the open road, you won't be rewarded with a breeze **TURBO BLOCK** for your pedalling effocts, which means you're going to get hot. Raising your front wheel a few centimetres off the Very hot. A couple of fans will ground will make your bike level when it's sitting in only keep you cool but they'll also the A-frame of your turbo. Check whether a block comes as standard when you buy a turbo-they keep the air circulating in the often don't. Or an Argos catalogue will do the trick. room, ensuring that over time, it doesn't end up smelling like a well-used changing room.









If the howling wind and icy rain are making existence unbearable, cycling nirvana is just a flight away

Mallorca

Ride the Balearic island and discover why so many pro teams run training camps here

Smooth tarmac, dramatic scenery and patient drivers. Sounds too good to be true, right? Well, call it an island mentality – especially one where the economy encourages two-wheeled tourism – but there's a reason Mallorca is known as a cyclists' paradise. From Sa Colobra's twisting descent (pictured) to the dramatic coastal paths of Cap de Formentor and the long slog up Puig Major, the island has something for everyone. Away from the major roads, the traffic is on the light side too and even when it's busy, you'll find the drivers are in no hurry to get past you. Coming back to Blighty will be something of a rude awakening.











With immaculate weather and classy roads, this Mediterranean island is fast becoming the two-wheeled tourist's best-kept secret

3 Cyprus

While the island once echoed to the tones of Craig David, today it rocks to the sound of the derailleur

ot and dry, this Mediterranean island is better known for package tours than cycling ones but the immaculate weather and classy roads are fast becoming the two-wheeled tourist's best-kept secret. Cyprus has scenery more varied than an Ayia Napa cocktail menu, with twisting tree-lined roads, rough gravel paths and, at the top of Mount Olympus, snowy peaks. With a four-hour flight time making it a bit further away than some popular cycling destinations, you're guaranteed roads free from traffic, the occasional goat notwithstanding.





Check your power on any device

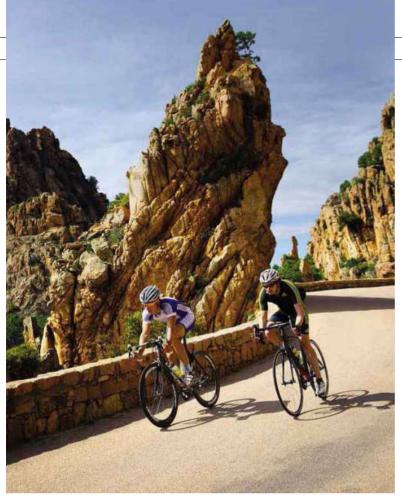
A basic trainer with just that little bit extra: read your power, cadence and speed on multiple devices simultaneously, to monitor and measure your fitness. Compatible with smartphones, tablets, bike computers and sports watches and via an upgrade even with computers.











Corsica

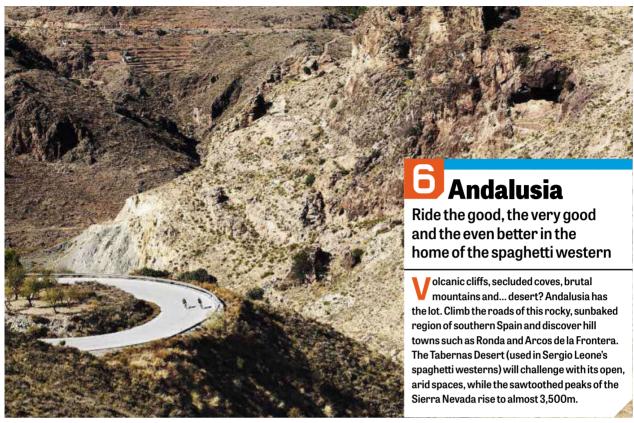
The most mountainous island in the Med mixes snow-capped peaks with scorching beaches

ike the land that time forgot, Corsica doesn't have motorways or McDonalds but does have an amazing terrain. Riders can experience sun-drenched beaches, pine forests and mist-shrouded mountains in a single ride. No visit is complete without a trip to the red coastal cliffs of the Calanches or a crack at one of the island's 20 mountains over 2,000m. And if you're feeling braced, take on the challenging descent through the Scala di Santa Regina. Something for everyone.

Head inland and you're met by mountains. Don't fret if drivers sound their horn at you – they're letting you know that they're passing







Lanzarote is famously windy but as it's just east of the Sahara, be thankful for the breeze as the climate would be similarly brutal without it

7 Lanzarote

Head to the Canary Islands for great weather, stunning volcanic scenery and challenging climbs

ith a maximum road altitude just shy of 600m, this Canary island doesn't share high passes and long climbs with the rest of the volcanic archipelago – but the location presents its own challenge. Lanzarote is famously windy but as it's just east of the Sahara, be thankful for the breeze as the climate would be similarly brutal without it. For climbing, head to the north of the island, in particular the Mirador del Rio, while the rugged landscape throughout gives you a sense of really being far from home – possibly Mars.





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Boardman Pro Carbon, £1,300,
boardmanbikes.com

Feedback Sports Pro Elite repair stand, £250, 2pure.co.uk

Muc-off Nano Tech bike cleaner, £9, MO-94 degreaser, £6, Bike spray, £10, X-3 Dirty Chain Machine & drivetrain cleaner, £30, Microcell sponge, £3, Nano Grit hand cleaner, £10, muc-off.com THE CAVE OF PAIN page 26
Lusso Windbloc T-shirt, £32.99, lusso.bike

Madison Sportive bibshorts, £54.99, madison.co.uk

 $\textbf{Fizik R3B Uomo shoes, £215,} \ extrauk.co.uk$

Merlin Cordite Ultegra, £1,399, merlincycles.com

Tacx Booster T2500 turbo trainer, £226, fisheroutdoor.co.uk

Token Sweat Net & Towel, £24.99, i-ride.co.uk



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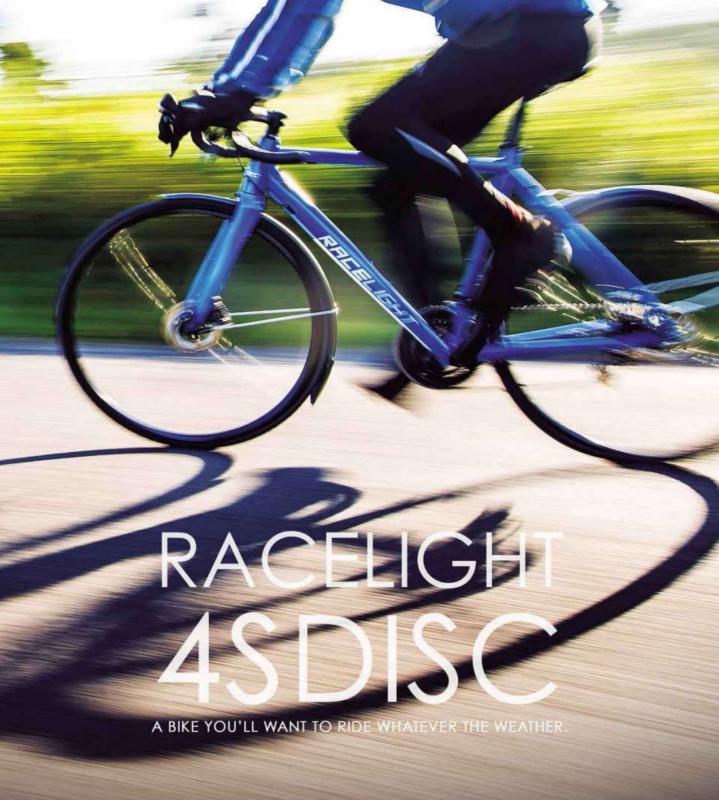
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